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Commodore sets firm dates for Amiga in UK

COMMODORE has announced that the long-awaited Amiga micro should be in the shops – albeit in limited quantities – before the Commodore show opens in London on May 9.

"The Amiga will be officially launched at the show, and there may well be a few machines floating around before that. The display at the Which Computer? show was a public

continued on page 40



ARIOLASOFT has boldly announced its Deluxe range of programs for the Amiga before the machine itself makes its appearance.

Deluxe Video is aimed at those making business presentations, interactive videos, animated cartoons and slide shows. It features full animation of screen images with sound effects integrated.

Deluxe Paint (see Popular Computing Weekly, January 30) is a sophisticated art program, which can use any one

of the Amiga's 4,096 colours, has zoom, unlimited choice of brush stroke, curve, polygon, and texture facilities.

Deluxe Print enables you to design your own greetings cards, calendars, stationery, labels and letterheads in colour or black and white, mixing text with graphics.

Ariolasoft says the programs are ready to be released when the Amiga is available (see above story). It expects each title to sell for around £80.

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EDITORIAL

At least we have a firm idea of exactly when Commodore intends to release the Amiga in the UK - formally at the Official Commodore Show, starting 9 May, and informally a few machines through selected outlets beforehand.

Having got hardware dates sorted out, the next query on everyone's minds will inevitably be how much software the companies can bring out quickly. The bane of every machine, whether compatible with its predecessors or a completely new system, is always the lack of software at launch.

Specifically, any home orientated micro will require some well-known, good quality games almost immediately. A new micro with business pretensions needs at least a word processor, database, spreadsheet and an accounts program to be going along with. Chris Kaday, Commodore UK's acting general manager, expects the first three, plus a graphics package (probably Ariolasoft's *Deluxe Paint*) to be ready and waiting. An accounts package, he says, will be lacking at first. A music composer and synthesiser, to take advantage of the Amiga's sound capabilities may also take a while. We can, he

assures, expect a fair bit of software, if only because the machine has been available in the US for around six months now. So the situation is no worse, and probably a bit better than most micros with no compatibility (leaving the Amiga's IBM emulator aside) with any other.

The other main worry over the Amiga in the UK is who it's going to sell to. It certainly isn't going to be the home user here; not at first, not at £1500. Kaday cites "the traditional business dealer", which seems a bit of a waste of the all-singing, all-dancing Amiga. He goes on to state that the education market is "a priority" - an area where Apple (whose Macintosh occupied the same sort of psychological 'slot' as the Amiga a couple of years ago) and Apricot, at similar pricing, have also tried, with limited success. Kaday then talks of desktop publishing, graphics stores and ad agencies; niche markets.

At that rate, it's going to be a long time before the UK Amiga, when available, is going to get anything like the high profile it has received before it is available, when we all hoped it would be at a price the computing individual could afford, credit card companies willing.

Editor Christina Erskine Features editor Graham Taylor Software editor John Cook Production editor Lynne Constable Advertisement manager Diane Holyoak Advertisement executive David Osen Classified executive Jon Beales Administration Geraldine Smyth Managing editor Peter Worlock Publishing director Jenny Ireland. Published by Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 286275 Typeset by Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. Printed by Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. Distributed by S M Distribution, London SW9, Tel 01-274 8611, Telex 261643 © Sunshine Publications Ltd 1986.

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Computer Trade Association Magazine of the Year

ABC

Amiga dates

4 continued from page 1

preview but when we announce it on May 9 the machines will be there to buy," said Chris Kaday, Commodore UK's acting general manager.

He also said that one of Commodore's priority marketing areas for the Amiga, which will be a 512K, twin-disc system in the UK, will be in education: "While we will



Amiga: education a priority

start with the traditional business dealer - if they still exist - we have also got educational distributors specifically to tackle the educational market, particularly the higher education sector. A number of universities already have Amigas."

Chris Kaday also admitted that Commodore was considering selling its premises in Corby, following the closure of its assembly plant (see *Popular Computing Weekly*, January 9). Only 160 people are now employed at Commodore UK. "We have huge premises here," he said. "We could sell, and then lease back those parts which we want. We've got people looking at it now."

However, he would make no comment at all regarding the repayments of Government grants given to Commodore when it moved to Corby, because of Corby's status as a steel-closure town.

ZX Microfair in May

THE date of the next ZX Microfair has been announced as Saturday, 10 May, at its now regular venue, London's Royal Horticultural Hall - near Victoria Station.

Atari supplies CP/M emulation free

ATARI ST owners will now be able to get the ST CP/M emulator free of charge.

When the software emulator was announced at the recent Atari Computer show (see *Popular Computing Weekly*, March 13), it was expected to be available as a retail software package at an equivalent to its US price of \$50 (about £35).

"At that time, we had not decided whether to follow the route they took in Germany,

which was to offer it free, or sell it as they do in the US," said Atari UK's marketing manager Rob Harding.

"Now we are going to issue the emulator to all our dealers. The scheme is intended to give ST owners access to CP/M public domain software, of which a number of titles are available on a 3½ inch disc format.

"We are also negotiating with major CP/M manufacturers to have their copyrighted titles put on to 3½ inch discs."

The free emulator should be available within two weeks. Anyone wanting the package should take a blank 3½ inch disc to their local Atari dealer, who will put the emulator software on the disc for them.

All change at Memotech

CHANGES are in the air at Memotech as the company prepares for a substantial relaunch.

The company's financial backers are apparently pulling out, and a new Memotech will be restarted with the current technical director, Geoff Boyd at its head. The company is now going through a six-week stock checking and handover period.

A spokesman for Syntaxsoft, a software company which has worked closely with Memotech in the past, said, "We have been told they will be trading again from April 1."

It is widely thought that Boyd also has a new computer, similar to the MTX models but with better disc facilities, to be unveiled shortly.

Memotech has had a disappointing history. Its machines, the MTX500 and MTX512, have never sold well, despite being highly regarded for their design and specification.

Modem company in Channel Four probe

CHANNEL Four's consumer investigation programme, *For What It's Worth*, recently highlighted problems people have had with the now defunct company modem manufacturer Unicom.

According to Unicom customers appearing on the programme, the company had debited their credit cards,

of the Rushworth Dales group, set up a company called Demon Products and continued to sell the modem, FWTW said.

John Jones himself told *Popular Computing Weekly*: "It is significant to say that only tens of people lost money over Unicom. I'm very sorry for them, but the circumstances aren't as enormous as they were made to seem."

On the question of overcharging, he added: "What some people had done was to order the modem and software and not include the software in the amount - or the VAT in some cases."

But Jones's partner at Unicom, Barry Krite, the inventor of the Demon, who now heads Datastar Systems, told *Popular Computing Weekly*, "There was certainly plenty of substance to the programme - I've been trying to get the story told for ages. I've been trading for years in mail order with no complaints, but on that project there was nothing but agro."



but never supplied the goods. The programme also claimed that at least one customer had been overcharged on his credit card account for a Demon modem he ordered.

When Unicom collapsed, its co-owner John Jones, who was also managing director

Mastertronic launches Madchrome label

MADCHROME is the name of another new label from budgeteer Mastertronic.

Following the success of MAD games, priced at £2.99, Madchrome titles will also be that price.

"Like the MAD range, Madchrome will include

games that we feel are of especially high quality, but they will be in a completely different style to the MAD range. Many of the MAD games have featured big cartoony characters - the new titles will look more polished," explained Master-

tronic's Alison Beesley.

The first title in the new range will appear next week. Called *Countdown to Meltdown*, it is a rerelease of an old Creative Sparks program. Ironically, Alison Beesley says it is not a typical example of the new range.

Mosaic computerises The Archers

FOLLOWING last year's *Secret Diary of Adrian Mole*, Mosaic Publishing is set to delve deeper into soap opera scenarios with the release this year of its sequel, *The Growing Pains of Adrian Mole*, and also a computer game based on the radio serial *The Archers*.

Both titles will be pro-

grammed by adventure specialist Level 9; however, the scripts for *The Archers* - which Mosaic is calling an "interactive fiction game" - are being written by the radio programmes' editor William Smethurst.

These two games will not be available until the autumn, when they will be released for Spectrum, Amstrad and Commodore machines.

Mosaic's first release this year will be *The Snow Queen*, a text and graphic adventure based on Hans Christian Andersen's fairy tale.

Robotic arm

SPECTRAVIDEO, manufacturer of the best selling Quicksot joysticks, is moving into the futuristic toy market.

Its Robot Arm is designed for younger children, and gives a range of movements, including grabbing objects and holding them, and scooping things up.

The Robot Arm is computer controlled, and Spectravideo plans to make interfaces available for Spectrum, BBC, Commodore and Amstrad machines. The Arm will cost £39.95. Details from Spectra video, 165 Garth Rd, Morden, Surrey (01-330 0101).

Popeye bounces back on Spectrum

POPEYE, the game licensed by DK'Tronics, but never properly released, has now



Commodore 1571 disc drive now in shops

COMMODORE says its long-awaited 1571 disc drive is now available in the shops.

The 1571 is a fast drive, but



double-sided where the 1570 is single-sided. It is the 1571 which is incorporated in

Commodore's 128D machine. It was originally intended to be launched with the 128, but Commodore brought out the cheaper 1570 in a last minute change of plan.

The stand alone 1571 costs £269, the same price as for the C128 itself.

Palace stirs Cauldron II

CAULDRON II, a sequel to the successful *Cauldron* is to be released by Palace Software on 23 May.

The new game is similar in style to its predecessor - an arcade adventure with 128 screens where, as a pumpkin, your task is to destroy the witch featured in the original game.

The original *Cauldron* was recently voted game of the year by the French computer games magazine, *Tilt* and has sold over 75,000 copies.

Cauldron II will be priced at £8.99 and released initially on the Commodore, although Palace plans to bring out Amstrad and Spectrum versions about a month later.



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Correct heads

I am writing to you hoping one of your readers can solve a very frustrating problem.

I have owned a Commodore 64 for over a year. During this time I have used the C2N Datassette to load software. Recently some games have started not to load. I have tried using an alignment tape on the C2N, but can never set the heads exactly correctly.

Could it be the C2N motor revolving too slowly or do I need to replace the heads? I have heard that newer model heads tend to be inferior. Can anyone suggest somewhere that repairs C2N.

Andrew Nightingale
Griffithstown
Pontypool
Gwent

Disc additions

BC Micro users with discs may be interested to know that Sunil Jagots's *Under the Mortuary* game (8-27 February 27th issues) can be loaded and played from discs with a few modifications.

The following changes/additions should be made to the Basic instruction program.

Add the line: 91f
page < > &3800 Then

Page = &3800:Chain
"B.Mortuary" (or whatever name you have called the instruction program)

Change line: 160*Load
Prog 1200

Add lines:
162*Tap
164f = &12:1 = &C:b = &26:
o = &70:
n&72:P% = &880:(OPT0:
LDA#0:STAO:
STAN:LDA#:
STAO+1:LDA#t:STAN+1:
LDX#b: A:LDY#0:
B:LDA(o), Y:STA(n),
Y:INY:BNE
B:JMP&2C35:) 166Call &880

Line 164 moves the &2508 bytes of machine code (actually &2600 bytes are moved) from &1200 to &0C00 and jumps directly to the game itself.

This is a general-purpose routine, tucked away in a quiet corner of the Beeb's memory (the printer buffer), which could be used to move any non-overlapping block of memory. Notice that only one pass is required since there are no forward label references. The important variables are:

t—(from); hi byte of old start location / low bytes assumed

t—(to); hi byte of new start location / to be zero

b—(bytes); hi byte of the number of bytes to move.

This simplifies the routine by only dealing with blocks of 256 bytes.

I hope you find these changes useful.

A J Hulley
Hemel Hempstead

Bugged games

I recently read an article in an American trade magazine. It was reported that a Professor Aolli had been studying the existence of bacteria in I/Cs.

Apparently the small voltages present help to support certain life forms. There are various types, but they all seem to belong to the genus *Prollofia*. In a random test of over 1000 chips, the bacteria were found to be present in 63% of them.

Further tests showed that no apparent harm could be detected in either the human operators or the computers in which the bacteria was found. It does, however, lead to the conclusion that over 60% of programs really do have bugs in them.

So the next time that game won't load or the mega game you are working on suddenly crashes, you know what to blame.

M Sleight
Doncaster



"I hope you're going to kill off Dan Archer as humanely as possible."

Power supply

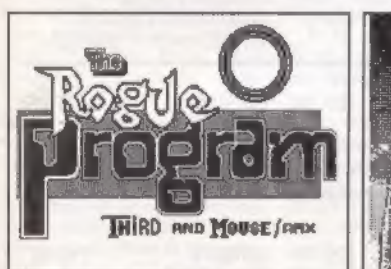
I have been asked by a member of my family living in France to obtain a power supply for a Memotech MTX 800.

I have tried at several shops, but they could not help. Can you?

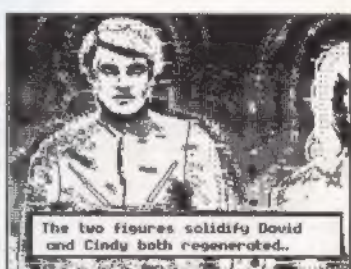
Josiane Alexander
London E6 4RY

Memotech's telephone number is Witney (0993) 2977, although you will probably get an answerphone reply. You could also try UK Home Computers, which sells Memotech equipment on Swindon (0793) 695034.

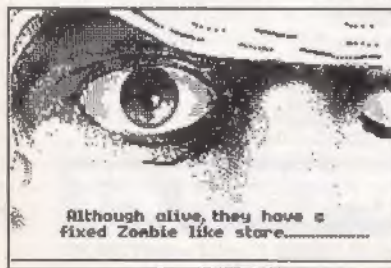
The Rogue Program



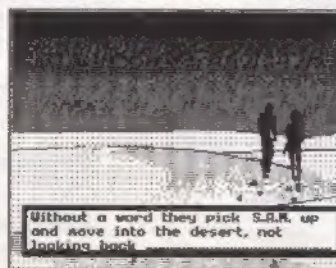
S.A.M. investigates the wreck and seems to have invoked strangers?



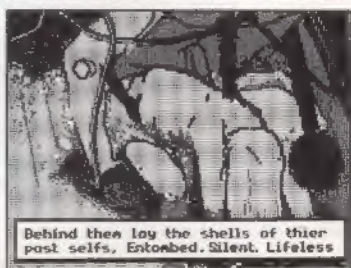
The two figures solidify David and Cindy both regenerated.



Although alive, they have a fixed Zombie like stare.....



Without a word they pick S.A.M. up and move into the desert, not looking back



Behind them lay the shells of their past selfs, Entombed. Silent. Lifeless

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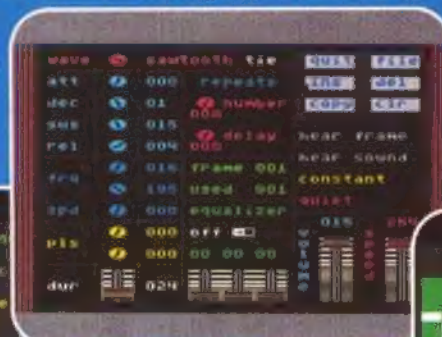
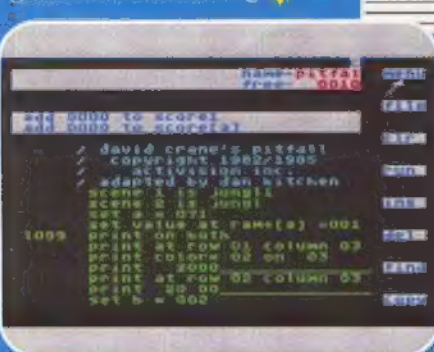
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A solution . . .

Hardware Robtek *Game Killer* Micro CBM64, C128 in 64 mode **Price** £14.95 **Supplier** Robtek, 36 Market Place, Falloeden Way, London NW11 6JP, Tel. 01-208 0118; available through chain stores and specialist retailers

Some call it cheating, but it's certain that whenever a particularly complex new arcade game appears, close on its trail there will be a rash of Pokes and infinite life routines designed to make it easier to play. Up until now only those with a reset switch and a good knowledge of machine code have been able to exploit such techniques, but with the help of Robtek's *Game Killer* dedicated gamers can now gain an unfair advantage over many Commodore 64 games.

The *Game Killer* is a cartridge similar in appearance to Robtek's *Turbo Programming* utility packages. It plugs into the 64 (or 128 in 64 mode) and, on powering up, produces an all-singing, all-dancing title screen featuring music by the very wonderful Rob Hubbard.

Pressing the space bar resets the ma-

chine, and you can now load any tape or disc based program as normal. Despite certain comments on the BBC's *Micro Live* programme, I haven't yet found a program which fails to load normally with the *Game Killer* in place.

The cartridge works by disabling the 64's sprite collision routines. As most of you will know, the 64, unlike most micros which rely on "soft" user-defined graphic routines, has hardware sprites. This makes it in many ways an ideal games machine, since game characters can be easily designed and made to interact.

This interaction consists of a number of "priority" and "collision" hardware routines, which allow programmers to make sprites appear to pass over each other, or over a background. The 64 can also be programmed to register when sprites collide with each other, or the background; in many arcade games this is the technique used to activate "death" routines.

The *Game Killer* simply disables the sprite collision routines, making it impossible in some cases for your player to be "killed". By pressing the cartridge's reset button, all the routines are disabled, and after a short interruption the game resumes at the point you left it. You can also opt to disable either the sprite-

Easy to use

Program XRom Eprom Programmer **Micro** Any Amstrad CPC **Price** £69 **Supplier** Timatic Systems, Fareham Market, Fareham, Hants.

From software on the Amstrad computers hasn't reached quite the same epidemic proportions as it has on the BBC, principally because you have to buy a board with sockets before you can even use them. Even so the number of available Rom programs has been slowly growing and it was inevitable the Eprom programming hardware would follow. As is the way with such things, several have begun to be advertised at the same time, but the Timatic board appears to be cheaper than all but one and included in the price are three spare Rom sockets, freeing you from the need to buy a separate utility to use the resulting chips.

The driving software for Timatic's Eprom board also has more relevance than most to the home user - although it will allow you to duplicate purpose written Roms for commercial sale, it also provides some marvellously easy to use software options. You can put your own Basic or machine code programs onto Rom, as long as they take up less than 16k. The Roms that use this option copy the software back into Ram so that although they are accessible instantly they do not free more memory room for data.

On the other hand the programs are then editable and you don't have to worry about learning all the ins and outs

to-sprite or sprite-to-background routines only. Having achieved the desired effect, the *Game Killer* can then be switched off by pressing the reset button while holding down the joystick fire button.

It's going too far to claim that the *Game Killer* is the perfect solution to all difficult arcade games. Many games do not use sprite routines at all - *Mercenary*, *Elite*, and so on - while many which appear to use hardware sprites actually use software routines (*Uridium*, for instance).

However, with games on which the cartridge does work the effect is shattering. With *Who Dares Wins 2* you cannot be shot, and can walk over water; with *BMX Rider* you can ride straight through the landscape; with *Transformers* you can ignore the attacks of the Decepticons; with *Impossible Mission* you can walk straight through the guard-ian robots.

At £14.95, just the price of two games, I can't see any dedicated games player not wanting to buy the *Game Killer*. Although it isn't a miraculous solution to all games, it's certainly magic - and as for cheating, well, all's fair in love, war and computer games . . .

Chris Jenkins



of Rom/Ram switching. 8k and 16k Roms can be used.

The board is an extraordinarily well constructed piece of hardware. It is enclosed in a solid metal case and connects to the CPC by a ribbon connector, allowing it to fit any model of machine. The connector has a through bus for other hardware. The four Rom sockets, one containing the menu driven XRom software, each have switch selectable Rom numbers, real switches rather than little plastic links. The Eprom to be programmed is set into a separate Zero Insertion Force socket.

You are provided with a very reliable looking (ie, nothing like a Sinclair power pack) 9 volt power supply that only needs to be connected if you are programming the Roms, not if you are just reading them.

There are one or two minor criticisms; the documentation is short on explanation in some areas, and, although you have the option to set the Rom size in blocks of 256 bytes, which can save time if you are Roming a short program, it would be nice if you also had the option for selecting between a full 11 or 16k chip. On the whole, though, it is a quality product that has proved to be a surprisingly useful and useable peripheral particularly with its ability to Rom your own Basic programs.

Tony Kendle

High quality

Hardware Spectrum RGB Output Module Micro Spectrum and Spectrum+ **Price** £34.95 or £36.95 with through connector **Supplier** Adapt Electronics, 20 Starling Close, Buckhurst Hill, Essex.

This interface is intended to enable Spectrum users to connect their computers to monitors with RGB inputs in order to obtain higher quality display than possible with a domestic TV set.

Many computers already have this facility built in; for example, the BBC micro, the QL and the Orics. Coincidentally, it is possible to use a BBC micro RGB lead as long as it has 6 pin DIN plugs at both end - I used the lead supplied with a Microvitec monitor.

Since the necessary RGB outputs are not in themselves present on the Spectrum, the unit decodes the YUV outputs from the Spectrum edge connector. The review model had to be 'tweaked' as per the instructions supplied, using a small screwdriver to adjust a trimmer component through a small hole in the box, to obtain a good, clear, steady picture. This adjustment is quite easy to carry out.

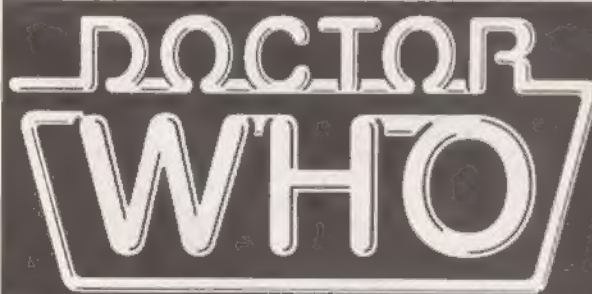
Once adjusted, the picture is clear and steady, although one Spectrum connect-

ed refused to co-operate and consistently gave a snowy picture. A small red LED labelled SYNC lights up if all is well. Some early issue 1 Spectrums (identified from serial numbers supplied) require internal modification by soldering three wire links across marked places on the circuit board. This does not affect the Spectrum's use with a TV set.

The model reviewed had no through port, so that it was not possible to connect any other devices unless they had their own through connectors. Adapt Electronics can supply a version with a through connector at a slightly higher price.

Power is taken from the Spectrum's edge connector and, therefore, a separate power supply is not required. The outputs are 'True TTL/Analogue Outputs With Composite Syncs' which means that it should be possible to connect the interface to most monitors and TV sets with RGB inputs, provided that you have a suitable cable. Do not be surprised if the Bright command appears to have no effect - this would be quite normal with many RGB monitors since they cannot respond to varying brightness input. All eight Spectrum colours are shown correctly with barely a trace of colour crawling. The difference it makes to the picture has to be seen to be believed!

Dilwyn Jones



THE STORY SO FAR . . .

Doctor Who, aboard the Tardis, receives the following message from the Time Lords "MASTER plans to divert course of time and dominate the universe. TIME INSTANT REPLAY UNIT (TIRU) being built on 2nd moon of planet Rijas, using Heatonite ore mined and processed by oppressed Rijas. STOP mining of Heatonite. DISABLE factory. REGAIN TIRU plans. RETURN to Gallifrey. WARNING — may be trap! BEWARE robot controllers. 'SPLINX' can be programmed to help you".

DR. WHO PART ONE

The Doctor materialises in the Mine Workings, together with Splinx. Deep down below the Madrag guards his radioactive eggs and watches a key exit to the central lift system. Above patrol robot controllers. Rijas can be seen mining and transporting ore. A Pick-axe and an oxygen bottle in this sector could well be of use. The Doctor has 4 large pockets in his multi-coloured cloak.

CAST IN ORDER OF APPEARANCE

The Doctor, Splinx (active/inactive), Madrag, Rijas, Controllers, Super-Controllers, the Master.

MAIN AREAS IN COMPLEX

Mine Workings, Reactor Area, Planet Surface, Factory, Construction, Greenhouse, Security, Escape Pod Unit, Control Room, various 'un-mapped' areas.

HINTS AND TIPS

There are 8 Cryogenic Sleep Chambers in the Complex. Make sure you visit each one. If regeneration occurs, you will return to the one last visited. Controllers can only travel on power rails — though this includes staircases. An early objective should be to obtain the Pass Card which is in the safe in the Security Area.

SEE THIS AREA FOR FURTHER REVELATIONS

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Atari's spring collection

The ST range is growing - John Cook previews the new machines

Guessing exactly what Atari would launch next became something of an industry hobby last year, with various ST configurations being mooted and then changed as marketing caught up with R&D. Does anyone remember the 130 ST and 260 STs?

Also, Atari seems to have shot itself in the foot with the 'numbers and letters' syndrome - 520 STM and 1040 STF don't exactly roll off the tongue. But luckily, this doesn't stop these two recent launches from being machines that will generate a great deal of interest in the home computing world and possibly beyond.

Let's deal with the new 'entry level' machine of the ST range, the 520 STM - the last of the letters referring to the new addition, a TV modulator. That's right, you are no longer obliged to purchase a monitor with your ST, you can hook it up to your existing telly, which obviously won't be adequate for the likes of word processing and hi-res graphics, but will work well enough for medium and low resolution work.

According to Atari, this will provide, "a greater opportunity for consumers to purchase a 16-bit micro for a mere £399". Well... not quite... as purchase of a disc drive is obligatory if you actually wish to run anything on it - that'll cost you another £150. Still, £550 is still a great deal cheaper than the price of an old ST system.

The 520 STM comes with *ST Basic*, *Logo*, *1st Word* and *Neochrome* - like the old ST but you'll have to buy the D-Master One database as extra. Naturally, the 520 STM also has a monitor output for when you eventually upgrade.

Apart from the addition of the modulator, the major difference in the new machine is the fact that TOS now resides in Rom. This decreases the booting time dramatically, down to about six seconds from nearly 10 when loading from disc. No significant changes have been made to the operating system itself, except the code has been trimmed down to 192K.

Physically identical to the old ST in all other respects - other than the new modulator output - the new machine has all the potential strengths of the previous 520, and with an ever growing software base - it's obviously well worth a look if you're looking to upgrade.

So what about the new 'top of the range machine', the 1040 STF. The first thing you notice is the lack of wires and boxes adorning your workstation - this is because Atari has done the sensible thing and put everything in one box - power supply, disc drive, the lot. This makes the unit a couple of inches deep-

er, and around 4½ lbs heavier.

The 3½ inch drive is located on the right-hand edge of the machine and is double density, double sided, allowing 720K of storage. However, it will read both single and double-sided discs.

Its positioning relegates the joystick and mouse ports to just under the front, righthand side of the unit. This is no handicap to operation - in fact, once again, it looks neater and more professional than before.

Like the 520 STM, TOS is now installed in Rom - but the big difference (and the big selling point) is the expanded memory, increased to 1 Megabyte, configured as 32 Ram chips.

All that extra memory... I can see ex-owners of the ZX81 drooling at the thought, and it's all directly addressable by the main processor. On the other hand, when did you last write a program bigger than 20K?

One of the main applications for large amounts of Ram is the creation of a Ram-disc - transferring the contents of a disc into memory, and thus cutting down on all the access time wasted whenever you want some information from the disc.

Unfortunately, this facility has not been directly built-in to the 1040 STF and although third-party programs exist that will provide a Ram disc, it can be regarded as something of an omission on the part of Atari.

However, at the end of the day, extra memory means extra potential - as long as the commercial software, or your own programming abilities, are up to it.

The machine comes in two packages: one with monochrome monitor (£919) and one with colour (£1,149). It would seem to make sense to introduce a 1040 STFM to allow purchasers of the black-and-white system access to colour at a lower price.

A number of interesting things do seem to be on the immediate horizon - for starters, a CP/M emulator. Available free from dealers (you just take your disc along and get a copy), this will let you run CP/M 2.2 software on your machine. And when you start to think of the large numbers of public domain

programs that exist right now - plus the many commercial programs - this taps the ST into a large software supply. Although not much of it is presently available on the 3½ inch format, Atari is doing its best to rectify that problem.

Atari has also set a tentative date of August for the release of a co-processing unit which will plug into the DMA input of either machine. This will have an Intel 8088 chip and 512K of Ram on board, accepting a 5¼ inch floppy disc, and will allow the ST to run IBM and IBM-compatible software. With provisional pricing in the £200-300 range, this looks an exciting specification, although the extent of compatibility and its actual performance have yet to be tested.

There is a rumour of a 'blitter' chip that would plug straight into the 1040 STF's main board - and greatly enhance screen handling. At the moment Atari says this is "speculation... but sometimes speculation has a way of coming true". Watch this space for details. And the much mooted CD Roms? It looks like these have been delayed indefinitely, until the price of dual digital/ audio CD players comes down to a level "suitable to a mass market product".

So what does all this activity mean to



the ST range? Does it make an ST a better buy? Should you be interested in 16-bit computing in the first place?

The future of home computing is certainly going to be 16-bit based - eventually. But at around £1,000 for the top of the range machine, the ST is still very much an enthusiast's system. Atari is aware of this, and so the entry level 520 STM may well prove to be a good move.

Although a fair range of software is now available for ST owners, Atari has also been smart in offering compatibility with other systems (CP/M and IBM).

But this spring, the ST range seems to have come of age - Atari making the right moves, and the price is starting to come in range of lesser mortals. Yes, other 68000 machines exist but if you want one now, for less than £1,000, then the ST is the main contender.

BATTLE OF THE PLANETS

RETAIL
£9.95



BATTLE OF THE PLANETS is the Space simulation
that was selected for the
National Computer Games Championship

MIKRO-DEN Unit 15, The Western Centre, Bracknell, Berks. 0344 427317

Stellar

Disc changes

Program *Alternate Reality*
Micro Atari Price £14.95
Supplier US Gold, Unit 10,
The Parkway Industrial Estate,
Birmingham. Heneage St,
Birmingham.

The packaging is very modest, it says 'The Ultimate role playing fantasy game'. Pretty impressive stuff, I thought, as I began loading the first of two double sided discs.

On starting this adventure, you are presented with a very well designed initial sequence which lasts for well over five minutes and you could almost be forgiven for thinking that you're looking at the credits of a major movie. Titles roll by accompanied by an impressive soundtrack and action sequences until finally we are at the doorway to the city, where all will be revealed - the city of Xebec's Demise. This is where you have been transported to after being kidnapped by an alien spaceship - a room with only one exit. Overhead is a panel displaying constantly changing numbers, when you pass through the door the numbers freeze and there you have your levels of stamina, charm, intelligence, wisdom, skill and wealth.

Using your joystick you explore the three dimensional city, visit the taverns, battle n'er do wells, discover treasure - everything a worthy adventurer would do. Your goal? Return to earth or seek revenge on your abductors.

Creation of your character is very easy, but living long enough even to have a quick pint in a tavern is hard going.

The main criticism of this game is the incredible amount of disc changing. It completely ruins the atmosphere to be informed every few turns, "please insert Disc 2 Side 1" (or vice versa). I can only put this down to bad design by the author. Indeed, I changed discs five times, at the start only to be told finally that I'd died! I shall persevere however, as I am sure somewhere there is a good game - you've just got to find it.

Andy Moss



Of the elite

Program *Wanderer Micro*
QL Price £19.95 **Supplier** Pyramide (France) Rio Promotions Ltd, 28 Waverley Grove, London N3 3PX.

Since *Pixion Chess* was launched over a year ago on the QL, there have not been many three dimensional pieces of software to match *Pixion's* high standards of graphics. However, Pyramide, a new software house from France, have just issued *Wanderer*. A three dimensional space game with plenty of twists.

The first twist, and the most unwelcome is that the 3D graphics are plotted by an algorithm that draws two separate lines of different colour to simulate the depth of the line. To see such graphics,

you have to wear silly 3D specs, that after a few hours, hurt your eyes.

The second twist is that the game is almost identical in style to the world famous *Elite*. With the wire figures moving about the screen, the player has to be able to fight off all invaders, hostile battle ships, travel across the galaxy as well as being a good tradesman.

The type of tradesmanship involved is the ability to sell a better card deal to ten different planets that play poker together. The better the deal you give the planets, the more galactic currency you receive. This currency for an unknown reason is dead cats.

The whole object of the game is to do enough trading, and fight enough battles, to increase your score. Once done your rating will go up and if you are of sufficient calibre you may try to take on

the Black Holes and eventually the deadly Sphinx until you reach a rating 10.

The controls are a little awkward if you do not have a joystick because, if you wish to move your spaceship's viewpoint up, down or rotate it, you have to use the function keys as well as the cursor key to go forward or slow down. As it is a very large and realistic adventure, one would expect to find a Save facility, but this nearly vital facility is missing.

I am very impressed with the graphics, despite the glasses, and action is never far away with over 30 different types of enemy to battle with. This certainly is another notch up for QL software and an excellent start for Pyramide.

Matthew Palmer



Who's there?

Program *ID Micro Spectrum*
Price £7.95 **Supplier** CRL, CRL House, 9 Kings Yard, Carpenters Rd, Stratford, London E15.

Since *Deus ex Machine*, Mel Croucher has been pretty quiet. He split from Automata to 'concentrate on some new ideas', and presumably this release from CRL's new label Nu Wave is one of them. It's a sort of *Eliza* program given a different orientation in that you play psychiatrist and must discover through questioning who

the intelligent life force that has taken residence within your Spectrum really is.

Its past is a mystery, although you know it has lived many different lives, and its memory is shattered. In order to unlock the mysteries of its past and get it to function in a normal manner, it has to trust you implicitly and by talking to it via your keyboard, answering its questions and generally making it feel good, your trust percentage will rise until finally a few clues will begin to pop out. Talking to the program is pretty limited and I found, a lot of the time, ID telling me "I don't understand that" which, let's be honest, is always go-

ing to be the problem in an *Eliza* program with limited memory facilities.

Its questions were also a bit strange, like "Are your parents alive?" - not the sort of question I might like to answer if I was a bit sensitive.

Mel Croucher has a wonderful imagination and dreams up some fabulous ideas, but I must say I found ID quite tedious. The lack of variation (until very late on in the game) left me feeling quite bored. Unless you have great patience, and enjoy fighting with a restricted vocabulary, give it a miss.

Andy Moss



Aquaquest

Program *Aquanaut 471 Micro*
QL Price £19.95 **Supplier** Microdeal, 41 Truro Road, St Austell, Cornwall PL25 5JE.

Pure text adventures become boring when a curt description of the location is all that is supplied to help your quest. Microdeal's *Aquanaut 471* is the first text adventure that incorporates full graphic displays and even small arcade style games.

The game starts in a submarine that plunges to the depths of the ocean in search of an oceanic station.

This is a difficult task as the amount of air in your aquanaut limits your life, unless you reach your station in time. Then you have to dock at the station.

You are faced with a simple arcade game that allows you to move the ship across the waters to the port of call, at the same time avoiding obstacles. Once safely docked, you can start to explore the station.

Throughout the game you

are faced with a number of problems that seem relatively hard, as well as the arcade games that test your agility. The cursor keys have been specially defined to allow single key entry for directional movement, but complex operations have to be typed in by the more common method of sentence construction.

Though as adventures go this is not the most difficult, if you enjoy solving problems and playing arcade games, get it if you can afford it.

Matthew Palmer



Useful

Program *New Paper Clip*
Micro Commodore 64 Price
£44.95 **Supplier** Ariolasoft 68
Long Acre, Covent Garden,
London WC2.

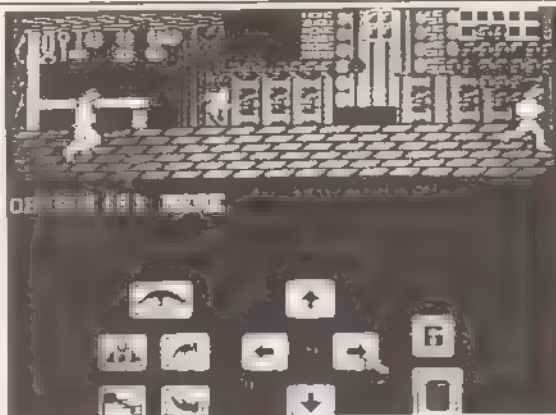
There is a growing trend nowadays to look for more serious applications for home computers. Having saved the universe at least twice and bashed a few Orcs, people are realising that just maybe their electronic box can serve a useful function.

Having realised that yes there is going to be a demand for business packages, software houses are releasing a number of word processing programs for the home user. One of the most complete systems is *New Paper Clip* from Ariolasoft. Presented as 'The Professional Word Processor' it certainly lives up to the big billing. The package comes in a very neat box set, along with an 128 page manual which contains a well written 11 lesson tutorial for the first time user. Sample documents are included on disc for practice and it soon becomes plain that *Paper Clip* has been designed with ease of use as a paramount feature.

Most commands are issued via single key instruction, even a complicated feature like a 92 phrase recall facility is performed by just two key-strokes. All the standard WP features are present along with underlining, bold face, italics, subscript and superscript. There is one drawback in owning a powerful word processor like this and that is the standard of your printer. You need to have a pretty decent printer in order to be able to use features like italics or bold face text. There is also a facility in the directory for changing the character set or typing in French, however, I couldn't get it to work.

This apart, *Paper Clip* is an impressive program and when included with Ariolasoft's other business related releases (*The Consultant* for instance) can prove to be an invaluable asset.

Andy Moss



More scrolls

Program *Ark Pandora Micro*
CBM 64/128 Price £9.95 **Supplier** Rino Marketing, 1 Orange St, Sheffield.

This game, classed as a graphic adventure, would I think be better described as an arcade adventure. Basically the idea behind the game is that you have been imprisoned for life on a remote fantasy island.

The inhabitants release you on the condition that you set them free by defeating the high priest of an evil cult.

To do this you will need to find the Sacred Scroll. Various objects will help you to achieve this while assorted nasties will try to stop you. The game is icon driven, which tends to confuse matters at first, but once mastered it makes the controlling of the character quite easy.

The main action takes place on the top half of the screen, where considerable time and

effort have gone into producing some very good graphics (the main character does some amazing forward rolls).

The bottom half of the screen contains your energy level, score and icons. Moving your cursor over the various symbols and pressing the fire button will allow you to do such actions as picking up and dropping objects, check the inventory, save and load game play, use an object and restart from the beginning. Using the Look icon, a sub-picture will tell you what perils lie in the various directions. If there is danger in the direction in which you are heading, the direction icon, which is normally green, turns red.

Other features available are the option to play on in an old game and a screen designer to enable you to design your own graphics.

Overall I found the game to be quite addictive and it should appeal to the arcade adventure enthusiast. My only criticism is that at £9.95 it is a bit overpriced.

R. Garrett



Old hat

Program *Revenge of the C5*
Micro Spectrum 48K Price
£1.99 **Supplier** Atlantis Software Limited, 19 Prebend St, London N1.

I thought the C5 was dead. And I thought - at least I hoped - that C5 jokes were equally defunct. So when I was handed this package, with its cover illustration of Sir Clive's glorified trike bursting through a pink financial newspaper, my reaction was 'Wishful thinking on behalf of Sinclair loyalists - that three-wheeled white elephant couldn't tear through a wet copy of *The Sun*'.

The game plot concerns Clive riding in a race over 40 stages, but it's not a *Pole Position* copy. This is strictly bird's eye view as Sir C swerves through the screens of a winding course to avoid bikes, wheels, even ghosts which can cause fatal crashes - and they told us it was safe! Controls provide three an-

gles of turn and an accelerator and there are 'learners' and 'posers' modes; crashes return you to the start in the latter.

All unsophisticated stuff then, and the flicker of certain sprites, and attribute problems where they just shouldn't be, hardly make it game of the year. But here, despite my aversion to the dated central 'joke', despite the lack of polish, despite ev-

everything... I have to admit I found it horribly addictive. For some reason, getting to know each new stretch of road with its attendant hazards, so that you can plan a route through the forks, is just the thing for a few untaxing hours. Just what a budget game should be for 1% of the price of the C5.

John Minson



Lost art

Program *Labyrinthion* Micro Spectrum 48K Price £1.95
Supplier Budgie Budget Software, 1 Orange St, Sheffield.

At first, this offering from Budgie Software looks quite promising. However, that old adage "You can't tell a budgie by looking at the cover" strongly applies here.

We are informed that we have entered a labyrinth of death where we may wander

in a timeless suspension of danger and mystery. The basic plot is to find nine parts of a scroll which, when found, will inform us how to escape from the labyrinth. But wait, don't be misled by the attractive packing and tempting blurb; this game is a typical example of appearances being deceptive.

If this game had been released about four years ago one or two people may have bought it. Even at the low cost I still feel it's overpriced.

R. Garrett



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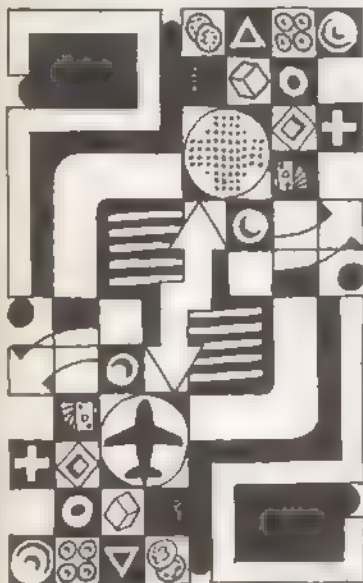
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EXTENDED BASIC

by Eric Deghaye



Last week we saw how to include our own small routines into the basic interpreter and how to fit them in the 'skeleton' program. However, one big item was missing: all our modules were totally independent of the

outside world, they did only one repetitive thing. We were able to change the colour but were unable to specify which colour we wanted. What we need is a way of passing numerical values/variables to our modules.

Calling the routine at \$0073 on its own is not much use, as it will return a character. But within Commodore's Basic there are routines that do the job perfectly and can be used in our modules. You really want to use a listing of the Basic and kernal Roms to find them all, but I can show you a couple.

The easiest one to use is at \$B7F1; it checks for a comma and transfers the next value found into X. To fetch the first value you need to do a JSR \$0073 first.

The listing included uses the same 'skeleton' as the program last week, but rather than just listing the modules, the whole program is listed so that the changes required to include your own modules mentioned previously are apparent.

lc.[value] changes the cursor colour to the value given

ls.[val].[val] changes the colour of border and screen to the values given

lt.[val].[val] puts the cursor at the given horizontal and vertical coordinates

For example: try this: lc,8 (characters will turn orange), ls,1,0 (white border with black screen), lt,18,18: print "hello mum" (prints on centre of the screen).

Also included is a renumber module. You can include it in the skeleton by doing the appropriate modifications such as number of commands present in the table, updating the commands table, etc... Use the renumber routine with fr,[start],[increment]. (Note: this does not change the Gotos and Gosubs.)

Writing your own modules should then not be too difficult using the routines mentioned above. I have written routines that give music commands, or which perform very fast sorts of arrays, and I include these as a block of data statements poked in the memory at the start of big programs - such as a database.

```

100 -----
120 -- BASIC EXTENSIONS NUMBER 4 --
140 -- PASSING VALUES TO THE ROUTINES --
160 -----
180
200 "lc,VALUE" CHANGES THE CHAR COLOR
240 "ls,VAL,VAL" CHANGES THE SCREEN COLOR
245 "lt,VAL,VAL" TABS IN X AND Y THE CURSOR
260
280 GETVAL = $0073
281 TRINX = $B7F1
300 ==$C000
320
340
360 RESET THE BASIC LOOP VECTOR
380
400 -----
420 LDA #CHECK
440 STA $0300
460 LDA #CHECK
480 STA $0309
500 JSR GETTABLE
520 RTS
600 CHECK JSR GETVAL !CHECK FOR CONTROL CHAR
620 CMP #55
640 BNE EXIT
660 JSR GETVAL
680 STA COMP !SAVE THE POTENTIAL COMMAND
680 LDX #KACOM
680 LDA COMTABLE,X !GET POSSIBLE COMMAND
680 CMP COMP !IS IT THIS ONE?
680 BNE DETADR !YES THEN..
700
720 BNE LOOP
740 BPL LOOP
760 JNE $A7E7 !EXECUTE LOOP
780
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960 EXIT JNE $A7E7
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17



General terms

This week I'll run through the rest of the glossary started last week, and also go over a few more general terms.

Serial

(i) Refers to an interface used for serial data transmission. The RS 232 and RS 423 are the most common serial interfaces.

(ii) A method of data transmission where each bit making up each of the binary ASCII values of each character is sent on its own.

For example, to transmit the character A, first its ASCII value is worked out - 65. This is then converted into binary - 1000001 and each digit is sent on its own. First the 1, then a 0, then another 0 until the last digit is transmitted, the 1.

Serial transmitting is cheaper than parallel transmitting.

Spool

Some software will give you the option of spooling to disc (tape is too slow and not usually used). This means that all incoming data is sent to the disc and a 'file' is built up containing all of the data.

Sysop

This stands for SYStem OPERator, he or she is the person who runs the BB. They have to buy the software and hardware and make sure that it doesn't break down. Many Sysops are available to talk to and most are friendly, provided you have sensible questions (most Sysops are fed up with the fact that about 99% of the people who ask for a chat have nothing to say).

TBBS

The name of a popular piece of software on which many BBs are run. It runs on a Tandy and was one of the first pieces of BB software on the market. TBBS stands for The Bread Board Software.

Teletext

This is a broadcast Videotext system, using the spare lines on a TV transmission. As this is broadcast over the air waves, this is a one way system and the user cannot transmit data to the host computer.

TX

Abbreviation for Transmit Videotext

An information system where the information is displayed on a screen, eg, the TV.

Viewdata

(i) A Videotext system which uses the phone lines to transmit data. Since phones are a two way device, it is possible for the user to send data to the host computer. BBs are an example of viewdata.

(ii) **Viewdata Format.** This is the name given to a BB which runs on the CommuTel or similar software. Prestel is also an example of a viewdata format BB.

Modem-specific Jargon

Ans Orig

When two modems are communicating at a full duplex speed, where both the Tx and Rx speeds are the same (ie, 300/300 but not 1200/75) then it is better to have one set for Ans and one for Orig. Ans = Answer. Orig = Originate.

Auto-Answer

The modem will listen in on your phone line and if there is an incoming call it will answer and do what ever the software tells it to. There are two types of auto-answer: available on a modem:

Ring Detect - The modem will 'tell' your computer that there is an incoming call and will not answer if: (1) the computer is not ready, (2) it has been set not to, or, (3) it is not connected to the computer.

Dumb Answer - The modem will answer the phone whatever. The computer could be turned off but the modem will still answer.

Auto-baud scan/select

The modem will select the speed of the BB and set itself to the correct speed.

Auto-dial

The modem will do the dialling. All you do is tell the computer the number and it does the rest.

Bell

The name of the tones used in the USA. The whole world uses CCITT standard - except the States.

British Telecom approval

British Telecom (BT) owns all of the phone lines in Britain (with the exception of Kingston upon Hull, which is private). So what it says, goes. The BABT undertakes to test all telecommunications equipment for approval, mainly with regard to the device's safety. No piece of equipment can be approved in this country until it has passed the BABT's tests.

By law prohibited telephone equipment can be bought, but should not be attached to your phone line. If it is then BT will ask you to remove it, and you risk being disconnected if you do not. Also BT states that you risk damaging your approved equipment if you attach unapproved equipment to it. A round green sticker is given to approved equipment, while a triangular red sticker is put on prohibited equipment.

Hacking

A hacker, in the specific sense, is someone who is capable of using a computer

and a modem to break into another computer and discover the passwords.

There is a lot of confusion about hacking and whether it is criminal. Certainly, hackers do it for the fun of it and not for personal gain, whereas a computer criminal does it for either personal profit or to cause loss of data to others.

The trial of Robert Schifreen and Steven Gold under the 1981 Forgery and Counterfeiting Act, concerning 'hacking' into Prestel comes up at Southwark Crown Court, on April 14, which may legally redress that definition.

I hope that long list proves useful, and if you wish to know about something which is not listed then write to me, c/o Popular at the address below.

I've received some letters from people who have trouble logging on to 1200 baud boards. If you have a modem such as the VTX 5000 which has only got Prestel compatible software then it is not possible to log on to a BB, which is not Prestel compatible (ie, does not run in Viewdata format).

If you have a modem which is only available to allow you to access other BBs. If you have a VTX 5000 then Stephen Adams has written two pieces of software at £5.95 and £6.95 which you can use. Contact him on 01-254 1889.

Now for this week's BB top 10.

Name	Baud rate/Access	Number
1. Minsig	300/300	0943 32637
2. DCCB	300/300 Ring Back	0243 07997
3. Minsig	1200/75 Viewdata	04-941 4285
4. CUBS	1200/75 & 300/300	01-531 3070
5. Microphone	1200/75 Viewdata	01-448 4494
6. Minsig	300/300 & 1200/75	01-346 7154
7. CUBS - TV	300/300 1200/75	0382 5206
8. Telcas Board	300/300 & 1200/75	0384 40601
9. Commercial demo 1	1200/75 Viewdata	01-583 7402
10. Dark Crystal	700/300 & 1200/75	01-854 9847

Now for some new BBs:

There is the London Underground, which is both 1200/75 and 300/300 baud. The number is 01-863 0188 and it's on-line 24 hours a day.

Next there's Telemac 15 which is also 1200/75 and 300/300 baud. The number's 0625-33703 and it's also 24 hours a day.

Pete's Palace BB is only 300/300 baud, but it is 24 hours a day and the number's 0206-862354.

For those of you in East Anglia there's East Anglia BBBS. You can ring it on 0001-885634 between 2400hrs. and 0800hrs. Lastly for those of you who only have Viewdata format software (which is 1200/75) there's EDWEB on 0265-52346.

David Wallin

If you have any queries, tips or comments to make about any aspect of micro communications, David Wallin would love to hear from you. Write to him at Popular Computing Weekly 12-13 Little Newport Street, London WC2H 7PP.

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Look at these deals on centronics printers we believe that these prices offer the best value in the country. All prices include receipted delivery. Despatch is within 48 hrs of receipt of order provided goods are in stock. A printer lead is supplied to suit your micro free of charge. (Please specify Amstrad, BBC, Oric, Dragon, Einstein, CBM64 or Memotech) for Spectrum or QL owners we will supply with an appropriate interface for an additional £10.00

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Near letter quality at 27cps
Correspondence quality at 65cps
Draft mode at 140cps

subscripts ■ superscripts

ENLARGED mode

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Good underlining

Plus many, many more features

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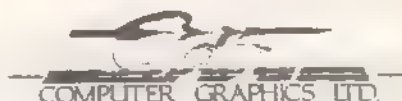
ONLY £249.00

All offers subject to availability

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Z80 PROGRAMMER Previous experience within the industry is essential, preferably gained through the writing of quality games software on either the Spectrum, Amstrad or MSX computers.

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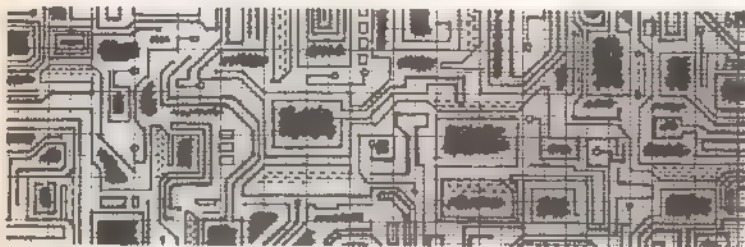
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PD14



COLOUR PALETTE

by Nic Ford

A colour palette is a facility found on many of the modern computers, notably the Amstrad range. It allows complex graphic screens to be drawn "invisibly" and then revealed when ready. A rudimentary form of animation can be achieved very easily, and the software Flash routine that a palette allows can enhance screens of text no end.

The program below gives the ZX Spectrum such a facility. It is split into two machine code routines. The first is a new Print routine, which is in many forms similar to the old one - it uses, however, a second attributes file which it updates as necessary, and it also takes care of the new commands. The second routine uses interrupts, and updates the true attributes file whenever a pen colour is changed or a flash occurs.

The program uses commands which are accessed by the Basic Print command - this allows any form of 48K Spectrum to use the palette, and although this is still to a certain extent clumsy, it is a lot better than hundreds of Pokes and Rand Ums. When in use, this form of command can actually be faster and take less Ram than an equivalent Basic command.

The colour palette uses a system similar to that found on the Amstrads - at least, to the user. Any text or graphics can be printed or drawn by any of 16 Pens. Each pen can hold one of the eight logical (normal) colours, or can be made to flash between two. The flash rate can also be changed at will.

Full descriptions of the new commands and their syntax will be given next week, together with a short demo program showing them off.

This week we present two programs. The first is a hex loader. Type this in and run it. Enter the text from the second listing, the hex dump, eight bytes at a time. Next enter the checksum. If there is an error you will have to type the line in again. When all the data has been entered it will be saved as "PALETTE".

To activate the palette, first Clear 83231, then Load "PALETTE" Code. Next, Randomise Var 64257 to switch it on. Because streams one and nought use a different Print routine to stream two, any thing printed in the lower part of the screen may cause an abnormal flash. For this reason it is probably best to not use the palette other than from within a program.

Listing 1: Hex Loader

```
10 DEF FN a(h#)=16*(CODE h#-4B-7*(h#(1))
   "9")+CODE h#(2)-4B-7*(h#(2))"9"
20 POKE 23656,B: FOR I=64256 TO 65016 STEP 8
30 LET t=0
40 PRINT "I":
50 INPUT h#: IF LEN h#(1)6 THEN GO TO 50
60 PRINT h#1: FOR P=0 TO 7
70 LET h=FN a(h#): LET t=t+h: LET h#=h#(3 TO )
80 POKE I+8,h: NEXT P: PRINT "a="I
90 INPUT ch: PRINT ch
100 IF ch(1) THEN PRINT "Error!": GO TO 30
110 NEXT I
120 SAVE "PALETTE"CODE 64256,760
```

Listing 2: Spectrum Palette Hex Dump

```
64256) FDF321B0FA1101FA=1047
64257) 01000136F0EDB83E=784
64272) C332FDFD21B6FB22=1176
64280) FEFD21B0FE1101FE=1066
64288) 01FF013600EDB83E=786
64296) FAE471ED5E01FF02=1147
64304) 21B0F71:01F73601=600
64312) ED00AF32E0FD3C32=1225
64320) ECFD2A1A5C110600=672
64328) ED52201D2A535C2B=640
64336) 01B0B0C5C05516C1=714
64344) 21EBFDED882A4F5C=1155
64352) EB233A7ED052221A=851
64360) 5CFB0C9F5C5D5E3A=1486
64368) E0FAD7C295FDD0E5=1608
64376) D21B0F701B0031=1522
64384) 00583AEDFDD06E00=967
64392) D02357ED0A0E8B5F=1374
64400) 32E0FDDDE121DFFD=1492
64408) 352019AF32E0FD2A=854
64416) D0FD7D6C6722D0FD=1318
64424) 32DFFD2AEDFD7D6C=1291
64432) 6722EDFDE1D1C1F1=1495
64440) C33800E7CD7A1CC3=1032
64448) 0723CD38FDFE0628=856
64456) 10F53E7ECDDDFC3A=1185
64464) 0E3C00DDDFCF1C3D0=1441
64472) FC3A0E5C60FFEA0=1200
64480) 282EFE442832FE50=832
64488) C256FDC0D8F8E043=1400
64496) 7D5CCDA2A2743E=763
64504) 5E07F0F477EFD4E=1066
64512) F7CB412001A0C851=832
64520) 2002A02F77C3F0FC=1055
64528) CD08F8ED437D5CC9=1365
64536) CD08F8ED437D5CC9=1365
64544) 798B30066905AF5F=947
64552) 1808B12B3068A1D5=679
64560) 1808B12B3068A1D5=679
64568) 9C800794F09C1C5=1055
64576) 1B04AFD5D9C12A7D=897
64584) 3C788A47793C8338=785
64592) 1228123DAFCD0EEF=910
64600) 09791009D1D9E1D1=1431
64608) C1D9C928E0CF0A32=1156
64616) 0E5C11C2F8C3800A=901
64624) CD4F0001FF02100=684
64632) F71101F73AECFD77=1178
64640) ED00AF32E0FD3C32=1521
64648) FE0D11B0F72128F7=843
64656) 01E102ED0021E0F9=1147
64664) 011F0018DFA728D0=694
64672) FE012B3FEA5D2FA1=1395
64680) 09FE7E1167FCC800=1091
64688) 0AFE183028FE0638=692
64696) 24FE0FADF4092B1D=845
64704) FE133845111CFDFE=950
64712) 1638031104FC320E=626
64720) 5CC3800A111CFD32=773
64728) 0F5CC3800A28F5C=717
64736) E5FD3655FFC0FA09=1335
64744) C12A845C2BFD7056=953
64752) 7C0FBF0FE603C6F7=847
64760) 673ACEDF77577CD6=1202
64768) 9F673AEDF0571A77=1042
64776) C9320E5C0E108721=755
64784) EFD03F1600195E23=763
64792) 56C3800A1119DFCC3=1040
64800) 8A8AC38FDFE1830=980
64808) 2D87878787473AEC=950
64816) FDE60FB032EFCDF09=1414
64824) 119DFCC3800ACD38=1020
64832) F047DFFEC7B20D4=1209
64840) C5E7C0921CC0941E=1174
64848) E16F22D0FDC9CF8A=1262
64856) CD38FD47DFFEC278=1226
64864) 20BEFE1030F3AEC=906
64872) FDE6FB0B032EFCDF9=1639
64880) FE103E2F5E7CD82=1355
64888) 1C0D941E0E83858=809
64896) F5DFFE2C2806A1F5=1296
64904) 1808F7C0921CCD94=982
64912) 1FE00830A3C14FF1=920
64920) A72100FFECDB8FD4=1155
64928) 2100FFCD8F0ADF32=1142
64936) E0FDC9F5C5F5E86=1466
64944) 107EE6FB1777DC6=1239
64952) 106F10FE1C0B1C8=1020
64960) 01C801C905C805C8=824
64968) 05C80506107EE6C7=790
64976) B1772310F8C1F1C9=1230
64984) CF13E056C9191918=824
64992) FF9DFCC41553C87=1031
65000) 3C8780001FFFE58=676
65008) FD22FD3EFD000000=655
65016) 0000000000C36FBF=553
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by David Muir

Please remember though, it's just a game and should be treated no more seriously than the horoscopes in daily newspapers. Some tarot cards may have frightening titles, but the meanings are rarely as bad!

```

12E TIME:dn=INT(RND*78)+LOCATE 1,1:PRINT
13"CHOOSE CARD";i;("PRESS "CHR$(i+65);"
14" KEY");
15
290 WHILE UPPER(q) < CHR$(i+65):i=q:INKEY$
16dn=dn+78+(dn/76):MEMO$=MEMO$+dn
17
300 f=0:FOR i=0 TO k-1:f=f+(dn(i)+dn(i)):
18NEXT i:IF f < 0 THEN dn(i)=dn(i)+68:(dn(i)
19)=67:GOTO 300:ELSE LOCATE 39-i*3,1:PR
20INT USING"%;a3";a3;SOUND 35-i*3,12:PRINT U
21SING"6";a3;SOUND 3,130-i*10,10:NEXT i:LOC
22ATE 1,1:PRINT"PRESS ANY KEY";SPACE$(20)
23:GOSUB 60
24
310 RESTORE 630:CLS:FOR i=0 TO 101:9:RE
25AD dx,dy:LOCATE dx,dy:PRINT USING"b";a3;
26: SOUND 3,130-i*10,10:NEXT i:LOCATE 1,1:GOS
27UB 50:CLS
28
320 FOR i=0 TO 10
29
330 IF fk THEN fk=0:RESTORE 630:FOR j=0
30TO 10:READ dx,dy:NEXT i:LOCATE dx,dy:SOUND
313,130-i*10,10:PRINT USING"b";a7;dx=POS(
3240);dy=VPOS(40);i=j+1:GOSUB 70:i=i+1:GOTO
3360
340
340 RESTORE 630:CLS:FOR i=0 TO 10:READ
35
36:LOCATE dx,dy:LOCATE 3,130-j*10,10:PR
37INT USING"b";a7;dx=POS(40);dy=VPOS(40);i
38=i+1;j=GOSUB 70:j=i+1
39
350 NEXT
40
360 IF dn(i)<22 THEN n(i)=a(dn(i)) ELSE
41IF dn(i)<38 THEN n(i)=r(dn(i)-22-4*INT(
42dn(i)-22)/4))* DF "a*(INT((dn(i)-22)/4)
43) ELSE n(i)=!dn(i)-38-10*INT((dn(i)-38)
44/10))* "a*(INT((dn(i)-38)/10))
45
370 LOCATE 1,1:PRINT SPACE(131):PRINT SP
46ACE$(13):LOCATE 1,1:PRINT n(i):PRINT ("o
47ja(i)");PRINT "N - MEANING:";IF i<10 T
48HEN PRINT "N - NEXT CARD":ELSE PRINT "N
49 - NEW CARD"
50
380 n=UPPER$(INKEY$):IF n="N" THEN fk=-1
51:GOTO 400:ELSE IF n<"N" THEN 380:ELSE
52
53
390 PRINT a(i):PRINT:PRINT n(i):PRINT:PR
54INT c(dn(i),0):PRINT c(dn(i),1):PRINT:PA
55INT a7;dx=POS(40);dy=VPOS(40);GOSUB 70:
56LOCATE 1,dy+2:SOUND 3,130-i*10,10:GOSUB
5750:GOTO 340

```



```

400 NEXT LOCATE 1,1:PRINT". RE-RUN";SPA
CE$(22):PRINT". NEW 80";SPACE$(4):PRINT
"3. FINISH "I:PRINT SPACE$(13):GOSUB 3
0
410 q="":WHILE INKEY<"")WEND:WHILE q="
":q=INKEY$:WEND:IF q="3"THEN END:ELSE IF
q="2"THEN 160:ELSE IF q="1"THEN CLS:GOT
O 320:ELSE 410
420 SYMBOL AFTER 256:MEMORY 37999:SYMBOL
AFTER 246:DEFSTR a,m,c,n,r,s,l,q:DEFINT
d,i,j,f:DIM da(10),m(21),c(77),n(10),
r(3),s(3),l(9),a(10)
430 MODE 0:INK 0,1:INK 1,24:CLS:SYMBOL 2
55,0,60,60,60,60,60,60:LOCATE 1,1:PRI
NT"1";STR$(16,255):PRINT" "I:CHR$(125
5):SPACE$(14):CHR$(255):PRINT" "I:CHR$(12
55):" YAROT READER "I:CHR$(255):PRINT" "
I:CHR$(255):SPACE$(14):CHR$(255)
440 PRINT" "I:STR$(16,255)
450 RESTORE $10:FOR i=0 TO 21:READ c(i,0
),c(i,1):NEXT i:FOR i=22 TO STEP 4:REST
ORE $50:FOR j=0 TO 3:READ c(i,j,0):NEXT
j:RESTORE $10:FOR j=22 TO STEP 4:REST
ORE $34:STEP 4:READ c(i,j,1):NEXT j:FOR i=
1:38 TO 77:READ c(i,0),c(i,1):NEXT
460 FOR i=0 TO 21:READ a(i):NEXT i:FOR i=0
TO 3:READ s(i),r(i):NEXT i:FOR i=0 TO 9:R
EAD l(i):NEXT i:FOR i=0 TO 10:READ a(i):NE
XT i
470 RESTORE $80:FOR i=0 TO 1892:READ d:P

```

```

OKE 38000+1,d:KEXT
480 a1=CHR$(150)+STR$(3,154)+CHR$(156
):a2=CHR$(149)+STR$(3,207)+CHR$(149):
a3=CHR$(147)+STR$(3,154)+CHR$(153):a4
=STR$(5,8)+CHR$(10):a5=a1+a2+a2+a2+a2
+a4+a2+a4+a2+a4+a2+a4+a3:a6=CHR$(207)+CH
R$(10)+CHR$(8)
490 a6=CHR$(154)+CHR$(10)+CHR$(8)+a6+a6
+a6+a6+CHR$(154):a7=CHR$(149)+SPACE$(3
)+CHR$(149)+STR$(5,8)+CHR$(10):a7=a1+
STR$(5,8)+CHR$(10):a7=a7+a7+a7+a7+a3
500 a8=CHR$(246)+CHR$(247)+CHR$(248)+STR
$(3,8)+CHR$(10)+CHR$(249)+CHR$(250)+C
HR$(251)+STR$(3,8)+CHR$(10)+CHR$(252)
+CHR$(253)+CHR$(254):RETURN
510 DATA IDEALISM IMAGINATION,UNWORLDLY
FOLLY,WILL ABILITY MASTERY,MISUSE OF POW
ER,UNCONSCIOUS INSPIRATION, DECEITFUL MO
NAN, FRUITFULNESS FERTILITY,SQUANDOR RES
OURCES,AUTHORITY FATHER, TYRANNY DOMINATI
ON,NORAL GUIDANCE,POMP CEREMONY,CHOICE D
ECISION
520 DATA WRONG CHOICE,SELF-CONTROL CONFI
DENCE,CONCEIT ARROGANCE,HARNESSED EMOTIO
NS,EMOTIONAL STRAITJACKET,DETACHED INAPPR
IABILITY,LONELINESS SEPARATION,GOOD FORTU
NE,MISFORTUNE,JUST REWARDS, PUNISHMENT,F
RESH PERSPECTIVE, OUT OF TOUCH WITH REAL
ITY
530 DATA FRESH PASTURES,GRASS IS ALWAYS

```

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LEMENTS,VOLUNTARY SELF-RESTRICTION,NARRO
W VIEWPOINT,BREAKING OLD HABITS,COLLAPSE
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G INTUITION,ILLUSION,ENTHUSIASM JOY EXPE
CTATION

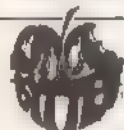
540 DATA THOUGHTLESSNESS,CELEBRATED SUCC
ESS,SELF-PROMOTION,ALL OPTIONS OPEN,INAB
ILITY TO CHOOSE

550 DATA A MATURE MAN,A MATURE WOMAN,A Y
OUTH,A YOUNG GIRL

560 DATA PASSIONATE IDEALISTIC FAIR HAST
Y,DREAMY IMAGINATIVE GENTLE MOODY,INTELL
IGENT DECISIVE CUTTING,PRACTICAL EARTHY
STRONG DOUR

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LE IN LIFE,DOMINION,POWER,VIRTUE,INTEGRI
TY,COMPLETION,FULFILLMENT,STRIFE,COMPETI
TION,VICTORY,RESPIRE,VALOUR,OVERCOMING,H
ASTE,HOPE,STRENGTH,PREPAREDNESS,OPPRESSI
ON,SELFISHNESS,NEW LOVE,RELATIONSHIP,LOV
E,HARMONY

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ATIATED,LOSS,SORROW,NOSTALGIA,OLD FRIEND
S,DISSIPATION,ILLUSION,ABANDONMENT,SACRI
FICE,MATERIAL SUCCESS,WELL BEING,FULFIL
LMENT,CONTENTMENT,FRESH CONQUEST,NEW AND
ITION,TRUCE,TENSION,SORROW,SEPARATION,RE
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PDS



RAINBOW

by Cy Noble

the BBC B and Electron. Please note that on the Electron you will need to change Line 250 to MODE 6.

If you want to save your fingers you can send to me for a cassette (£10) or 5in disc (£11.50) or 3in. disc (£16). Disc buyers get a copy of this article (in Wordwise format) plus three demo pictures and a small program to display them and a lBoot file so that hitting *Shift/Break* will run the program for you. My name and address are in the listing.

As memory is very tight I've not been able to include many Rems in the program for descriptive comments but I've given you a check sum for the assembled machine code. If the code doesn't match the check sum you will need to check your listing carefully. Remember to save your program before running ■ in case of accidents.

The first program (printed this week) contains abbreviated instructions on using the program, assembles the machine code and then chains the main program (printed later on). The addresses of the various routines are passed to the main program in the A% to Z% integers so the main program calls these addresses for colour fills, colour changes, GCOL on-

tion changes, etc. The last two are in a separate interrupt routine so they can be available at all times.

Each of the colours can be applied in five ways making 165 variations. There are three 'Solid' fills and two 'Open' ones with each shade. Open fills are done by leaving alternate lines in background black and any other colour pattern (except another Open one) can fill in the blank lines between stripes to produce yet another colour shade. However, filling an Open colour with Solid bars or the basic mix of another colour produces the same pattern so there are 66 (ie, $3-1 \times 34$) other Solid colour patterns that brings the Open/other fill possibilities to (66×35) 2,380. Adding that to the 165 'basic' variations we get a grand total of 2,545 possible colours/colour patterns. Probably many of these are duplicates or so similar as to be indistinguishable from each other, but in any case there are considerably more colours than the original eight (counting black).

Even more colour variations are available if you 'spray' random dots of colour over a previously coloured area so we can't really put a limit on how many colour variations are possible.

Over the next three weeks a multi-coloured painting program will be published. It will have a special colour fill facility with 35 basic colours and colour mixes, not counting black, available for use. The program works in Mode 2 and either an analogue joystick or the cursor keys may be used. It works with either disc or cassette on

```

10REM 1A1A1A1A1A
20REM By Cy Noble
30REM 323 North Circular Rd.
40REM London N13 3JH
50VVDUE(1):1FFAGE(1)500 THEN120
601FFAGE(1)500 THEN100
70KEYOF, DZ=010 IDP=1A. 5.4.2Z11500=
80Z11500.1N.1PFA.1E15001ND.1NG.101H
9000100100
90KEYOF, DZ=010 IDP=1A. 5.4.2Z14000=
Z1PFA.1N.1PFA.1E15001ND.1NG.101H
100AF1136.0.128
110END
120VDDU, 23, 249, 400, 480, 480, 480, 480, 480, 480,
480, 480
130VDDU 23, 249, 400, 400, 400, 400, 400, 400,
400, 400
140VDDU 23, 250, 400, 480, 400, 400, 400, 400,
480, 480
150VDDU 23, 251, 400, 480, 400, 400, 400, 400,
480, 480
160VDDU 23, 252, 400, 480, 400, 400, 400, 400,
480, 480
170VDDU 23, 253, 400, 480, 400, 400, 400, 400,
480, 480
180VDDU 23, 254, 400, 480, 480, 480, 480, 480,
480, 480
190VDDU 23, 255, 400, 480, 480, 480, 480, 480,
480, 480
200SCREEN=7401:screenadr=7721:tr-up=400
210screen=7401:screenadr=7721
220onvchr=FFEE:osystr=FFFF4
230onvchr=11:100:apc=441:pc=448
240onp=44:PCO:ac=4401:pc=444
250PCO(0)=PCO:ac=PCO:ch=ac
260CALL client:CALL trup
270Z=Zcol(1):BX=Zcol(2):CZ=col1:DZ=col2
280EX=Ccol(1):FX=Ccol(2):GZ=col3
OT
300Z=Zcol(1):BX=Zcol(2):CZ=col1
310Z=Zcol(1):BX=Zcol(2):CZ=col1
320Z=Zcol(1):BX=Zcol(2):CZ=col1
330Z=Zcol(1):BX=Zcol(2):CZ=col1
340Z=Zcol(1):BX=Zcol(2):CZ=col1
350Z=Zcol(1):BX=Zcol(2):CZ=col1
360Z=Zcol(1):BX=Zcol(2):CZ=col1
370Z=Zcol(1):BX=Zcol(2):CZ=col1
380Z=Zcol(1):BX=Zcol(2):CZ=col1
390Z=Zcol(1):BX=Zcol(2):CZ=col1
400Z=Zcol(1):BX=Zcol(2):CZ=col1
410Z=Zcol(1):BX=Zcol(2):CZ=col1
420Z=Zcol(1):BX=Zcol(2):CZ=col1
430Z=Zcol(1):BX=Zcol(2):CZ=col1
440Z=Zcol(1):BX=Zcol(2):CZ=col1
450Z=Zcol(1):BX=Zcol(2):CZ=col1
460Z=Zcol(1):BX=Zcol(2):CZ=col1
470Z=Zcol(1):BX=Zcol(2):CZ=col1
480Z=Zcol(1):BX=Zcol(2):CZ=col1
490Z=Zcol(1):BX=Zcol(2):CZ=col1
500Z=Zcol(1):BX=Zcol(2):CZ=col1
510Z=Zcol(1):BX=Zcol(2):CZ=col1
520Z=Zcol(1):BX=Zcol(2):CZ=col1
530Z=Zcol(1):BX=Zcol(2):CZ=col1
540Z=Zcol(1):BX=Zcol(2):CZ=col1
550Z=Zcol(1):BX=Zcol(2):CZ=col1
560Z=Zcol(1):BX=Zcol(2):CZ=col1
570Z=Zcol(1):BX=Zcol(2):CZ=col1
580Z=Zcol(1):BX=Zcol(2):CZ=col1
590Z=Zcol(1):BX=Zcol(2):CZ=col1
600Z=Zcol(1):BX=Zcol(2):CZ=col1
610Z=Zcol(1):BX=Zcol(2):CZ=col1
620Z=Zcol(1):BX=Zcol(2):CZ=col1
630Z=Zcol(1):BX=Zcol(2):CZ=col1
640Z=Zcol(1):BX=Zcol(2):CZ=col1
650Z=Zcol(1):BX=Zcol(2):CZ=col1
660Z=Zcol(1):BX=Zcol(2):CZ=col1
670Z=Zcol(1):BX=Zcol(2):CZ=col1
680Z=Zcol(1):BX=Zcol(2):CZ=col1
690Z=Zcol(1):BX=Zcol(2):CZ=col1
700Z=Zcol(1):BX=Zcol(2):CZ=col1
710Z=Zcol(1):BX=Zcol(2):CZ=col1
720Z=Zcol(1):BX=Zcol(2):CZ=col1
730Z=Zcol(1):BX=Zcol(2):CZ=col1
740Z=Zcol(1):BX=Zcol(2):CZ=col1
750Z=Zcol(1):BX=Zcol(2):CZ=col1
760Z=Zcol(1):BX=Zcol(2):CZ=col1
770Z=Zcol(1):BX=Zcol(2):CZ=col1
780Z=Zcol(1):BX=Zcol(2):CZ=col1
790Z=Zcol(1):BX=Zcol(2):CZ=col1
800Z=Zcol(1):BX=Zcol(2):CZ=col1
810Z=Zcol(1):BX=Zcol(2):CZ=col1
820Z=Zcol(1):BX=Zcol(2):CZ=col1
830Z=Zcol(1):BX=Zcol(2):CZ=col1
840Z=Zcol(1):BX=Zcol(2):CZ=col1
850Z=Zcol(1):BX=Zcol(2):CZ=col1
860Z=Zcol(1):BX=Zcol(2):CZ=col1
870Z=Zcol(1):BX=Zcol(2):CZ=col1
880Z=Zcol(1):BX=Zcol(2):CZ=col1
890Z=Zcol(1):BX=Zcol(2):CZ=col1
900Z=Zcol(1):BX=Zcol(2):CZ=col1
910Z=Zcol(1):BX=Zcol(2):CZ=col1
920Z=Zcol(1):BX=Zcol(2):CZ=col1
930Z=Zcol(1):BX=Zcol(2):CZ=col1
940Z=Zcol(1):BX=Zcol(2):CZ=col1
950Z=Zcol(1):BX=Zcol(2):CZ=col1
960Z=Zcol(1):BX=Zcol(2):CZ=col1
970Z=Zcol(1):BX=Zcol(2):CZ=col1
980Z=Zcol(1):BX=Zcol(2):CZ=col1
990Z=Zcol(1):BX=Zcol(2):CZ=col1
1000Z=Zcol(1):BX=Zcol(2):CZ=col1

```

```

330VDU#23,1,0,VDU#0#
340VDU#12,132,137,135:PRINT(" (c) 1985";
350VDU#14,1,1,125,0:PRINT("A=AB(800) *")
360VDU#140,31,31,25,0:PRINT("C=Circle")
370VDU#172,137,135,141,31,15,1
380PRINT "R=AB(0) *":PRINT
390VDU#29,135,135
400PRINT "Free draw option: "CHR$156
410PRINT "hold down fire button & move
cursor"
420VDU#29,137,135
430PRINT "Shape options: "CHR$156;
440VDU#136,129,69,137,134
450PRINT "Ends option:"
460PRINT "AB(22) *": "Line"AB(22) *":
"Triangle"
470PRINT "AB(13) *": "Rectangle"AB(22)
" *": "Circle"
480VDU#29,137,135:PRINT "Key options:
"CHR$156
490VDU#29,32,32:PRINT"<< keys 0-4>>CHR
$135;
500PRINT"<<CL"CHR$129"&key"CHR$135";c
nlow"
510PRINT"<<Keys 1-7> Select line/shape
Ends"
520PRINT"<<AB(1) Select fill colour"
530PRINT"<<B) Fill colour in W&B"
540PRINT"<<B) Fill colour SPEED"
550PRINT"<<D) Fill colour OPENED (strip
ed)"
560PRINT"<<B) Fill colour A) original a
&key above"
570PRINT"<<P) Palette List area c&key
d"
580PRINT"<<B) Dot spray near cursor in
4/9 colour"
590PRINT"<<M) Lists-colour dot spray"
600PRINT"<<J) Joystick/Cursor toggle sw
itch"
610PRINT"<<RETURN) fills shape around a
cursor"
620PRINT"<<DELETE) Delete screen (clear

```

```

31" *GPRINT" *COPY" Copy screen to/from di
32" *LAYOUT" *A Text at cursor <F> Fini
33" sh prog" *
34" *PRINTTAB (0) *CH129) *CH136) *CFRACE:
35" *MEN READY"
36" *600*F*21,0
37" *600*REPEATUNTILGET=32
38" *600*CH1" *R*W*2"
39" *S*END
40" *END
41" *ADD*P*P*Case
42" *P*OF (P*SS*U*1) *P*Z*col*min*OPT P*SS*2
43" *720, col*min*DL *L*78151A *scr*en*1
44" *P*OL*P*25*5151 *on*ce*IN*1
45" *74051 *ma*xi*fl*o*5151 col*215151 *scr*en*IN*1
46" *750*51 *col*1 *IN*5151 *scr*ach
47" *760* *ma*xi *col *low *if *s*ink *only
48" *770 *col*15151 *col*hold
49" *780 *DL col*2151A col*hold
50" *790 *M*KEK *colours *in col*1 col*2
51" *800 *D *in mixed at start
52" *810 *F *B *on*ce *for *box*es *or
53" *820 *F *or *B*ia *colours *only
54" *830 *DL *ma*xi*fl*o*DL *P*25151A *ma*xi*fl*
55" *840 *DL *B*DL *col*CL
56" *850 *M*EL*DL *col*1*DL
57" *860 *DL col*21*DL
58" *870 *DL *M*E *DL
59" *880 *DL *ma*xi*fl*o*B*DL *st*o*1*2
60" *890 *DL *ma*xi*5151A col*choi*ce*J*MF *col*o
61" *900 *ma*xi*5151A col*choi*ce*J*MA *s*in*2
62" *910, *col*o
63" *920 *DL col*hold*5151A col*2
64" *930 *DL col*2*hold*5151A col*1
65" *940 *DL *ma*xi*fl*o*DL *M*IKER
66" *950 *DL col*hold*5151A col*1
67" *960 *DL col*2*hold*5151A col*2
68" *970 *DL *on*ce*B*DL *ch*ld
69" *980 *DL
70" *990, col*choi*ce*DL col*2 *CP *scr*ach *B*CS *b*

```



```

1000.scratch:LDNE div1bata
1005:IA (scrach),Y
1030:LD a1x7:DEY:BN1 newscrach
1040:IA (scrach),Y:DEY:BPL scrach:INC
1050.newscrach:LD scratch:CLC
1060:ADC #32:STA scrach
1070:RNC ok1:INC scrach+1
1080.ok1:INC col2:LD col2
1090:IA col2:chrc:CHP #0:BEQ OK2:JMP MIX
1100.OK2:LD #0:STA col2:STA col2nol
1110:INC scratch:INC col1:LD col1:STA col1nol
1120:CHP #0:BEQ retn:JMP MIX:R
1130.retn:LD #0:STA mixflag:RFB
1140.retnore mixflag for next call
1150:
1160.start of fill routines
1170.gotops
1180:LD #0:ldscr MOD256
1190:LD #0:ldscr DIV256
1200:LD #0:STA neword
1210:LD #0:STA BSC:dsord
1210:RFB
1220.gotpx
1230:LD #0:ldscr MOD256
1240:LD #0:ldscr DIV256
1250:LD #0:STA neword
1260:LD #0:STA BSC:col1
1270:LD #0:ldscr INC ycoord:INC ycoord:INC
1280:RFB
1290:LD #0:ldscr MOD256
1290:LD #0:ldscr DIV256
1300:LD #0:STA neword
1310:LD #0:STA BSC:col2:LD col2:LD col2nol
1320:IA OK2:JMP MIX:R
1330:
1340.showcol:LDY#1:LDAB#0
1350.ok2:LDY#1:LDAB#0
1360:LDY#1:LDAB#0
1370.ok2:LDY#1:LDAB#0
1380:LDY#1:LDAB#0
1390:LDY#1:LDAB#0
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Map tips

I've had a letter from yet another strange pseudonym, a Mr Bones PI-38 "otherwise known as Kon Petrusiewicz" containing hints and tips and also a map for "Design-Design's wonderful, fantastic, brilliant and generally very good 2112 AD".

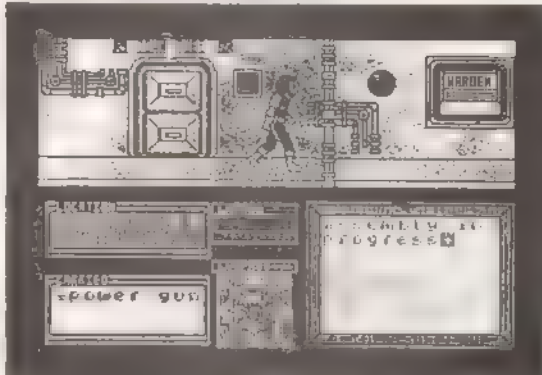
From what I've seen of 2112, Bones is not entirely unjustified in his praise, it's a nicely animated and comical game reminiscent of *Marsport* and with some nice problems, or at least there were some problems until now.

Here, for your benefit, are Bones's tips, minus the map unfortunately, which

was very nicely colour coded and hence not very easy to reproduce in a black and white magazine. I've managed to fit all the information contained into a table form so you'll just have to draw the map out yourself.

Can I just use this opportunity for passing on one or two hints about map

Marsport - inspiration for 2112AD



drawing, I am obviously grateful to receive your drawings, but it is sometimes a real problem trying to convert them

into something that we can reproduce in the magazine.

Being a weekly we like to try and keep topical and as up to date with your letters as we can, and it really is more likely that your work will be published if it is relatively neat, and very importantly drawn on blank paper rather than lined

or graph paper.

Also, if your handwriting is a bit illegible, just number the rooms, etc. and use a key. Finally, remember that this is a black and white magazine.

I want to express my thanks to everyone who has sent in maps before.

If you haven't seen them in print don't think that we don't appreciate the hard work that you have put in.

Those who have a copy of the *Arcade*

Champions Guide may well find that your maps are reproduced there - it was a long term project and we had time to work on your drawings properly.

Anyway, lets get on with 2112. Here are the tips.

1. Paddy is useless so don't bother moving him from the start.

2. Locked doors are unlocked with keys and credit cards - see the map details for more information.

3. You can carry three objects, but always have the first aid kit.

4. If you have a can opener and a can you can eat (using the *Eat* icon).

5. Two of the rooms are dark and you need to carry a light bulb to see.

6. The robots are not much of a problem unless you hit them in which case you are immobilised. Use the First Aid Kit.

7. The codes are set into walls. Just walk into them and pick them up.

From what I can tell, the bombs, the calculator and the battery are useless, at least to finish the game. The fuses are to repair Paddy when you overcharge him. However, if you leave him at the start you won't need to charge him at all.

9. The code sequence changes each game, but I think the codes stay in place each game.

Finally, Bones has a couple of other comments - unlike most Design games this has no highscore chart, but the ones in *Forbidden Planet* are excellent. Try *Dark Star* and the obvious swear words.

Also there is a bug in some *Thor's Arc of Yesod* which makes it unplayable - if you drop a bomb in a room in a floor, it crashes when an alien materialises into the floor. Bad news if true on all copies.

Tony Kendall

The Map

Draw a grid of six rooms across by seven rooms down, with enough space between the rooms to draw in some connecting lines (not all the spaces on the map will be filled with a room). Number them 1 to 7 downwards and A to F from left to right. The start is room C3.

EXITS

A2 Top to B2
B2 Top to A2. Left to C2 (need a Legge key).
B3 Left to B4 (need a cashpoint card). Right to C3 (the start).
B4 Left to B3 (cashpoint), Top to D4.
B5 Top to C4. Right to C5.
B7 Left to F7.
C1 Top to D2. Right to D1.
C2 Top to D1. Right to D2. Left to B2 (Legge key).
C3 Left to B3. Top to D3. Right to E4.
C4 Left to B5. Right to D4.
C5 Left to B5. Top to D5.
C7 Top to B7. Right to E7.
D1 Top to C2. Left to C1.
D2 Top to C1. Left to C2.
D3 Top to C3. Right to D2. Left to E2 (Barclaycard).
D4 Left to C4. Right to B4.
D5 Top to C5.
D6 Left to D7. Right to E6.
D7 Left to D8. Right to E7 (Yale key).
E1 Right to F1.
E2 Top to F2. Left to D3 (Barclaycard).
E3 Left to E4. Right to F3 (Access card).
E4 Right to C3. Left to F4 (Chubb key).
E5 Top to F6. Right to F4.
E6 Left to D6. Top F6.
E7 Top to C7. Right to F7. Left to D7 (Yale key).
F1 Left to E1. Top to F2 (Chubb key).

F2 Left to E2. Right to F1 (Chubb key).
F3 Top to E3 (Access card). Right to F4 (Cashpoint).
F4 Left to E5. Top to F3 (Cashpoint).
Right to E4 (Chubb key).
F6 Left to E6. Right to E5.
F7 Top to E7. Right to B7.
Dark rooms are D4 and E2.
Cans are in A2, B5, C1, C2, C3, C5, D1, D4, D5, E3, E4, E6, E7, F2 and F6.
Light bulbs are in A2 and D6.
Bombs are in A2, B3, E2 and F7.
Can opener is in C1.
Cashpoint card is in C2.
Barclaycard is in C4.
Legge card is in D3.
Chubb key is in D6.
Yale key is in F1.
Access card is in F2.
Fuses are in C3, D2, D4, E2 and E5.
Battery is in F7.
Electric dashboard is in B2, C3, C5, D3 and F1.
Code 5 is in B2. Code 7 is in B4. Code 8 is in B7. Code 0 is in C5. Code 1 is in C7. Code 9 is in D7. Code 2 is in E1.
Code 6 is in E2. Code 3 is in F3 and code 4 is in F4.
Robots are in B2, B4, C1, C4, D1, D3, D8, E5, F1, F2 and F4.
Plugs are in B3, B4, C2, D1, E2, E4, E5, F1 and F2.

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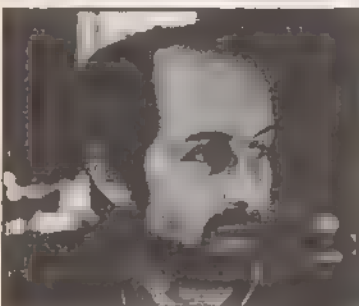
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Tony Bridge's Adventure Corner



Revived Interest

The Grand Elf popped along to the Atari Show a couple of weeks ago, at London's Novotel: it was like a scene from Dante's *Inferno*, as the hotel's management had decided that we computer enthusiasts weren't worth wasting the air-conditioning on, despite the 30 x £450 (the number of exhibitors x the cost of a stand) which was their haul from the three day sauna.

The ST has obviously revived interest in the Atari range, and the packages now available after just a few months bode well for the future of the machine. InfoCam have committed themselves to the ST, and all their adventures are now available, including *Bally-Hoo* and *A Mind Forever Voyaging*, neither of which I've seen, but both of which have drawn the usual accolades.

The latter sounds particularly interesting, having a lot in common, I'm told, with one of my all-time favourites, *Suspended*, casting the player in the role of a super-computer (though it requires 128K, so it will remain a mystery to most of us).

Sensational

Nearer home (at the end of the M4, in fact), Level 9 have nearly finished their new brilliance, *Magick*, and had a nearly-finished version running on the ST. Although some of the graphics and responses weren't complete, Elfie had a quick bash-around, and he can tell you that it is going to be sensational.

A strong D&D influence, as well as

very atmospheric exploration of an old, creepy house in search of magic spells and creatures to use them on, is sure to give the Austins their next winner (have they ever had a non-winner?).

Versions for all machines should be available in a couple of weeks, so watch this space.

Now to a couple of Quill'd adventures. The Elf's mailbag is filled every week with tapes from you readers containing your adventures, and although I look at them all, it is sometimes many months before I get round to mentioning each one - please forgive me, then, if you have been waiting to see your effort discussed.

Mandarin Adventures of Woking are a new name on the adventuring scene (the name, they tell me, was chosen for the simple fact that their adventures are the best available; what modesty!), and their first program is *Time of the End*. It's Quill'd, and concerns the future of "not too far ahead, when the fabric of society is crumbling as the Earth reels under a series of cataclysmic events - earthquakes, meteors, tidal waves and volcanoes".

Little do the inhabitants of Earth realise that these disasters are deliberately caused by powerful alien beings who are playing a demented game with Earth to overcome the boredom of infinity. The opening screen of the game includes a quote from T S Eliot: "This is the way the world ends/not with a bang but a whimper".

Wind-swept city

The adventure starts as you are wandering around a wind-swept city, exploring desolate bomb sites and reading colourful graffiti. After a few locations and fewer collectable objects, you'll find a silver orb hovering ominously above your head.

Getting it transports you, via a few colourful screens, to an alien lab, where alien experimentors seem intent upon dissecting your body for their own fiendish ends. You can escape their clutches, however, and indulge in a bit more exploring before you finally are recaptured and transformed into your second reincarnation.

If you're crafty, you will eventually be able to return to the locations the start of the adventure and re-explore; this time round, you'll be able to accomplish more if you keep your wits about you.

The main program is on Side One of the cassette. Side Two contains a little database, also written on *The Quill*, containing verbs recognised by the

main program, a general run-down on adventure commands, as well as background to the story.

The use of *The Quill* as a database (that is, locations contain information rather than standard descriptions) is a fairly obvious application, but one that is not often seen. Maybe more writers should use it, as it certainly adds to an adventure.

Atmospheric

At £3.98, I feel that *Time of the End* is a little over-priced, by about a pound. However, it is a good romp and fairly atmospheric with some nice descriptions and plenty of literary quotes (à la T S Eliot). I didn't find any spelling or grammar mistakes, and I liked the re-incarnation idea, in which previous searched locations reveal more goodies.

You can contact the company at Mandarin Adventures 14 Langton Close, Woking, Surrey GU21 3QJ.

The Lenticle of Thry is an intriguingly-named adventure from the Quill of Peter Page. he says that it has absolutely nothing to do with hippies (oh, why not, Peter?). Although he intends to include graphics, he hasn't done so yet and seems a little disapproving of pictures.

The game (which is the first of a two-part: a biology?) has been *Patch'd*, one of the first such adventures that I've seen, so it's a little more interesting than the usual run of Quill'd games, offering Ramsave and Ramload and interchangeable fonts.

Side issues

On loading, you are told that "Every day you must say, so how do I feel about my shoes? They make me awkward and plain". That's it, apart from a credit to *The Quill* and Andy and Richard for play-testing.

As Billy Wycheway, the pathetic guard of the lenticle, you have to recover the priceless baubles from Jemima, horrid queen of Solitarr, thus making amends for your incompetence in allowing her to get away with them.

Along the way, you're going to have a lot of fun. The loading screen is credited to Picasso, and is quite artistic - does it contain clues? I don't know, but I do know that the adventure itself is nicely implemented with brief, funny and colourful descriptions, disembodied voices telling you to get on with it, lots of "dead, slimy things" and other goodies to get.

The puzzles are not too difficult, but there are lots of diverting side issues to get involved in, so that even with the full solution, there's plenty to do.

Errors in input are well-trapped, and Load/Save and Quit sequences are originally handled, giving a nice air of professionalism to the product.

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Top Twenty

1	(1)	Uridium (C64)	Hewson
2	(2)	Yie Ar Kung Fu (Various)	Imagine
3	(3)	Commando (Spectrum/C64)	Elite
4	(9)	One Man and his Droid (Various)	Mastertronic
5	(8)	Formula One Simulator (Various)	Mastertronic
6	(-)	Computer Hits 10 Vol 2 (Various)	Bean Jolly
7	(5)	FA Cup Football (Spectrum/C64/Amstrad)	Virgin
8	(-)	Turbo Esprit (Spectrum)	Durell
9	(6)	Rambo (Spectrum/C64/Amstrad)	Ocean
10	(9)	Mr Puniverse (C16)	Mastertronic
11	(7)	Sky Fox (Spectrum/C64/Amstrad)	Ariolasoft
12	(12)	Action Biker (Various)	Mastertronic
13	(17)	Finders Keepers (Various)	Mastertronic
14	(4)	Hardball (C64)	US Gold
15	(10)	Hypersports (Various)	Imagine
16	(20)	Way of the Exploding Fist (Various)	Melbourne House
17	(11)	Movie (Spectrum)	Imagine
18	(-)	Winter Olympics (BBC/C16)	Tynesoft
19	(-)	Incredible Shrinking Fireman (Spectrum)	Mastertronic
20	(15)	Big Mac (C64/C16)	Mastertronic

Figures compiled by Gallup/Microscope

Readers' Chart No 67

1	(2)	Elite (Spectrum/C64/Amstrad/BBC)	Acornsoft/Firebird
2	(3)	Yie Ar Kung Fu (Spectrum/C64/Amstrad/BBC/MSX)	Imagine
3	(2)	Commando (Spectrum/C64/C16)	Elite
4	(4)	Movie (Spectrum)	Imagine
5	(5)	Lord of the Rings (Spectrum/C64/Amstrad)	Melbourne House
6	(6)	Winter Games (Spectrum/C64/Amstrad)	Epyx/US Gold
7	(8)	Spellbound (Spectrum)	Mastertronic
8	(-)	Way of the Exploding Fist (Various)	Melbourne House
9	(7)	Swords and Sorcery (Spectrum/Amstrad)	PSS
10	(-)	Uridium (C64)	Hewson

Winning Phrase No 67: "Fergie nets monarch idol", from Peter Boyle, of Thornton Heath, Surrey, who wins £25. An honourable mention goes to J Brook, of Fife in Scotland, for, "Denis got DT from alcohol".

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You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 69 closes at 2pm on Wednesday April 2, 1986. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name	My top 3: Voting Week 69
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New Releases

MARTIAL ARTS

The Way of the Tiger is yet another martial arts program, but it has significant differences of presentation such that it looks more like Gargoyles' *Dun Durach* than *Exploding Fist*.

Instead of meeting a series of adversaries statically, on a set background, combat in *Tiger* happens as you move across a scrolling landscape - a little like *Fighting Warrior* from Melbourne House.

It may seem a slight difference since the art of the game is still to use a series of blows to beat the other guy's brains out, but actually the feel of the game is very different. The changing background gives a sense of 'going somewhere' which adds, for me at least, a greater sense of mission to the game and therefore makes the battles all the more adrenalin raising.

The other unusual aspect to the game is its size - two

cassettes worth. That provides for various kinds of combat as well as a wide variety of backgrounds; later sections allow for beating bad-dies over the head with sticks and slashing them to ribbons with Samurai swords.

The detail is every bit as good as *Dun Durach* and I'd say *Way of the Tiger* has more than enough new features to recommend its purchase, even to those with half a dozen martial arts games already.

Program *The Way of the Tiger*
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FUNCTIONS

QL Paragon is an extremely neat utility program that provides a number of features available whilst other programs are actually running. Once loaded *Paragon* sits in memory, constantly available, but unaffected by other programming work.

Paragon, once called, presents a strip of icons on screen from which various functions may be selected. Some are fairly mundane - a clock's features you must initiate each session - others are far more interesting. One offering is a calculator function, where selecting the appropriate icon brings a graphic of a calculator up on screen.



Pick of the week

RESCUE ROBIN

Batman is an unexpected program. Unexpected because film and TV tie-ins usually have so much effort and money spent on the promotional advertising that there is nothing left for the game. With *Batman* there has been relatively little advance publicity and the game is beautifully crafted.

It is, of all things, a *Knight Lore* variety. Same 3D perspective, same 'push things around and put them on top of one another' to solve the puzzles, same kind of highly detailed graphics.

Versions arrived in the office for both the Spectrum and Amstrad and one thing is becoming clear - some kinds of Amstrad games are more impressive than their Sinclair equivalents. For a long while the Amstrad editions of games were last minute conversions of the Spectrum originals; now programmers have realised that the graphics and sound facilities of the Amstrad mean you can do everything you can do with the Spectrum with more colour and continuous sound.

Batman has the usual plot: collect pieces of (insert name here = batcraft) in order to (task = rescue Robin but who'd want to), dodge the countless alien hoards and collect the

batboots, catthruster, low gravity batbell and assorted batpills.

The screens are beautifully detailed, depicting a series of caves and caverns. The monsters are even better, gone are the featureless blobs of yesterday, these monsters come with assorted beards, fangs and gucci boots. There are the inevitable odd objects to jump on and off, (if you have the boots) and nasty conveyor belts that drag you in odd directions.

Another nice touch is a save game option: not an automatic cop-out for the faint-hearted, but a facility that is available if you manage to touch one of a number of reincarnation stones littered about the place.

There are other thoughtful touches like a feature to vary the sensitivity of the joystick - set a low sensitivity if you are a beginner and you reduce the chances of hurtling into a bottomless pit.

An excellent program that deserves to do very well indeed.

Program *Batman*
Price £7.95 (Spectrum)
£8.95 (Amstrad)
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This Week

Program	Type	Micro	Price	Supplier	Personal Spreadsheet	UI	Commodore 64	£7.99	Bug Byte
Swords and Sorcery	■	Amstrad	£9.95	PSS	Pro Financial Organiser	UI	Commodore 64	£7.99	Bug Byte
Music Minstrel	Ut	Amstrad	£14.95	Kuma	Utility Disc	■	Commodore 64	£7.99	Bug Byte
Karate Combat	S	BBC	£11.95	Supenor	gBase	UI	Commodore 64	£7.99	Bug Byte
Electronic Scheduler	Ut	Commodore 64	£7.99	Bug Byte	Character Toolkit	UI	QL	£8.00	Smiling Software
Bored of the Rings	Ad	Commodore 64	£7.95	CRL	Complete Toolkit	■	QL	£20.00	Smiling Software
30 Games	Arc	Commodore 64	£9.95	Argus	Smiling Games Toolkit	UI	QL	£8.00	Smiling Software
Dr Who + Mines of Terror	Arc	Commodore 64	£11.95	Micropower	The Assembler Workbench	UI	QL	£24.95	Talent
Smashes Vol 2	Arc	Commodore 64	£9.95	Gremlin Graphics	Advanced Swords and Sorc.	Ad	Spectrum	£14.95	PSS
Archon II	S	Commodore 64	£12.95	Ariolasoft	Doomsday Papers	Ad	Spectrum	£2.95	Maland Software
Family Tree	Ut	Commodore 64	£7.99	Bug Byte	Smashes Vol 1	Arc	Spectrum	£6.95	Mirrorsoft
Home and Business Card File	Ut	Commodore 64	£7.99	Bug Byte	The Lost Phirious Pt 1	Ad	Amstrad	£2.50	Vidlipix
Masterword	Ut	Commodore 64	£7.99	Bug Byte	Key: Ad - adventure	S	strategy-simulation		
					Arc - arcade	UI	Utility		Ed - education

This sounds trivial but isn't - you get the equivalent of a complex scientific calculator which will convert hex/binary, do Xor operations and so on - a valuable programmer's tool.

Another useful feature is a sophisticated screen dump, where the actual portion of screens to be dumped is defined by a pair of parallel rulers. It means, obviously, that you may simply dump the section of display you are most interested in.

There are many other examples and all feature what Eigen are keen to stress is true windowing and icons - you may, for example, shunt any one of the displays, eg, calculator, around the screen as you wish.

The whole package works well, is neatly displayed and is genuinely useful. For some programmers the instantly available advanced calculator features alone would probably justify the price.

Program QL Paragon
Price £19.95
Micro QL
Supplier Eigen Software
45 Bancroft Road
Widnes
Cheshire
WA8 0LQ

VICIOUS

It certainly isn't easy distinguishing between one martial arts game and another these days. It isn't easy to find something new to say about each one.

Fortunately, *Sai Combat* on



the Spectrum from *Mirrorsoft* is one of the best. In fact, I tend to prefer it over the Spectrum version of *Exploding Fist*.

There are two essential ingredients to a good martial bash'n'thrash, the first is that it should start relatively easy - you shouldn't have to thoroughly master some 16 different moves in order to defeat the first couple of opponents. The second point is violence; there should be lots of it. Blows should look and sound like they hurt (that humans should like such things is a knotty sociological problem too large for the consumer computer press, treat it as a fail accomplice and write to your MP).

Blows in *Sai Combat* involve large sticks, a correct hit is rewarded with a most effective thud that sounds like someone falling on to a pile of cardboard boxes - the sting of the blow is graphically represented by a flash of red or

green light at the affected area.

General game format is pretty much pure *Exploding Fist*. Two warriors thrash each other over a variety of changing picturesque backdrops.

As you win a round, so the difficulty level increases and at later levels vicious *Ninja Stars* get chucked around which should, needless to say, be avoided.

Sai Combat is definitely one of the best martial arts games on the Spectrum and is worth buying even if you have a couple of the others.

Program Sai Combat
Price £6.95
Micro Spectrum
Supplier Mirrorsoft
Headington Hill
Hall
Oxford
OX3 0BW

WONDERFUL

Zoot may be the perfect budget game. It is simple, lacking even the shortest of manuals, or most cursory of maps, but holds the interest long after many a more hi profile game has fallen by the wayside.

Zoot looks like a pretty standard arcade game, but actually requires strategic thought rather than fast reactions, and although the rules are simple, winning isn't.

It's a platforms and ladders game without ladders, instead some of the sections that make up the paving stones act as lifts that others can shunt across gaps.

The different levels are inhabited by various sorts of large, rather sad looking monsters which glump! wearily from section to section. Though these pose a threat of sorts, it is comparatively easy to duff them up with a single blow to the jelly.

That, though, isn't the point - the point is to manage to get to all the appropriate sections of the screen without leaving yourself trapped. The problem is that as you use sections of platform as elevators, they disappear on reaching the next level down. If you reach the bottom of the screen you can only get back up to the top if there is a platform in the same column as your section at the top.

It sounds complicated and is, in the sense that planning your route across the screen gets to be quite a complicated business.

There are various levels; in some you must reach and destroy all monsters, in others you have to isolate each monster by leaving it with only one square to stand on and so on...

Not only is the game oddly addictive, it also has some excellent sound effects including some of the best sampled speech I've ever heard on the Spectrum. *Zoot* is wonderful.

Program Zoot
Price £2.95
Micro Spectrum
Supplier Bug Byte
Liberty House
222 Regent Street
London
W1R 7DB

This Week

Argus, No 1 Golden Square, London W1R 3AB, 01-437 0626.
Ariolasoft, 58 Long Acre, Covent Garden, London WC2, 01-836 3411.
Bug Byte, Liberty House, 222 Regent House, London W1R 7DB, 439 0886.
CRL, CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD, 01-533 2918.
Gremilin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS, 0742 753423.
Kuma, Kuma Computers, 12 Horseshoe Park, Pangbourne, RG8 7JW, 07357 4335.
Matand Software, 29 Moorland Road, Mickleover, Derby, DE3 5FX, 0332 513095.

Micro Power, Northwood House, Worth St, Leeds LS7 2AA, 0532 434006.
Mirrorsoft, Mirror Group, Holborn Circus, London EC1P 1DQ, 01-353 0246.
PSS, 452 Stoney Stanton Road, Coventry CV6 5DG, 0203 667556.
Smiling Software, 26 Dale Road, Marple, Stockport, SK6 8HA, 061 427 5245.
Superior, Regent House, Skinner Lane, Leeds, LS7 1AX, 0532 459435.
Talent, Curran Building, 101 St James Road, Glasgow G4 0NS, 041 552 2128.
Vidipix, 125 Occupation Road, Corby, Northants NN17 1EG.

Postman's knock

Are you bored with sitting at your micro playing a simple strategy game with the computer as your only opponent?

Do you want to explore the stars in a simulated starship, even though your home computer has not got the capacity for such software? Do you want to play the ultimate modern combat game? If your answer to these questions is yes then read on...

The answer to all your prayers could well be 'play by mail' gaming, commonly referred to as 'PBM' games. A PBM game is a multiplayer fantasy game played, literally, by mail.

Players post their move instructions to the game moderator (GM) who, by hand, computer, or a mixture of the two, processes the orders and posts the results back to the players - each result unique to each player.

These players then decide on their next orders, and so on. The players pay the moderator to process each set of orders.

Unlike single player games, the results of actions also depend upon the actions of other people.

What's more, you can enjoy the fruits of computer power far beyond that of your own micro (one game, *StarGlobe*, uses up over 6½ Mb of storage media!) without spending a penny on new equipment.

You don't even need to own a computer to play a PBM game - all processing is done by the GM.

So what is there available? Well, quite a variety.

My favourite is *StarGlobe*, a 3D game of interstellar travel. You are a starship captain playing against over 200 other ships in a universe of 2000 stars. You can play in a variety of roles - pirate, explorer, empire builder, bounty hunter, merchant and xenobiologist.

The game is never ending and very challenging - well worth a try at £1.60 per game turn.

A new game to the UK, imported from

America, is *Global Supremacy*. It is set on a post-WWIII Earth. Many years after the holocaust, with the superpowers destroyed, 180 countries have developed late 1930s technology.

Each player rules one of these countries.

Your task is to gain global supremacy by defeating other players through clever diplomacy, careful economics, and great military strategy, and, of course, a fair amount of low running.

Instead of using a fantasy map you actually play using a world atlas, all physical features exist in the game. You have an incredible variety of military equipment - from infancy to aircraft carriers - to deploy around the world, and as the game progresses so do technology levels, eventually nations develop biological and nuclear weapons to use against each other once more.

It's very good albeit expensive, game costing between £7 and £16 per month to play.

Other games include: *Vorcon Wars*, a very popular logistics related planet based strategy game (at £1 per turn, it's a very good introduction to PBM); *Capital*, a US science fiction game of strategic space warfare (minimum £1.75 per turn); *World Of Vengeance* is a tribal game where the player leads his group in a future Britain almost destroyed by plague (£1.50 per turn); and many more of a similar variety are available.

If you like the look of the hobby then I recommend you to buy one of the two magazines available for further details. They are *PBM Magazine* (£1 payable to Emjay, 17 Langbank Avenue, Rise Park, Nottingham NG5 5BU) and *Flagship* (£1.75 payable to Flagship, P.O. Box 12, Aldridge, Walsall, West Midlands WS9 0JJ).

If you join a game, then bear in mind that it takes a few turns for you to settle in to the style of gaming and for other players to get to know you. Once you've undergone your initiation, you may well get hooked.

Brandon Kavanagh

Puzzle No 201

The other day I purchased from our local second-hand book shop the *Complete Works of Shakespeare*, in eight volumes. It was a very attractive set of books and came complete with its own miniature bookcase.



Consider my annoyance on discovering, a few days later, that my young children had taken the books down and had rearranged them in the wrong order on the shelves! Curiously, the numbers of the eight volumes formed a fraction whose value came to exactly three - that is, the four digits on the books in the top of the bookcase represented the numerator and the four the denominator. In addition to this, none of the books occupied its correct position on the shelves.

Can you say how they were arranged?

Solution to Puzzle 196

The next hexagon which can be rearranged into a square contains £6,3884.41. The hexagon has 1465 rings, the square has sides of 2521 coins.

The answer was calculated using the following program:

```
10 FOR K = 106 TO 100,000
20 LET N = 3 * K * K - 3 * K + 1
30 IF 100,000 <= INT (SQR N) = INT (100,000 * SQR N) THEN PRINT N, K, SQR N
40 NEXT K
Line 30 has to check for accuracy as SQR functions can be inaccurate by about 10-4
```

Winner of Puzzle No 196

The winner is Paul Rhodes of Ventnor Gardens, Luton, who will be receiving £10.

Rules

If the puzzle can be sensibly solved using a computer, then the winner will have included a listing of the program used to find the correct answer. The closing date for Puzzle 201 is April 22.

The Hackers



from MAGNIFICENT 7



INDOOR SOCCER



C16/PLUS 4



AMSTRAD/SCHNEIDER

High speed animated soccer game with one/two player option. Joystick and/or keyboard. Also available for Spectrum 48K.

PHARAOH'S TOMB

A high-res multi-screen graphical adventure with large animated monsters and traps to be avoided. C16/Plus 4 only. Joystick or keyboard.



TOURNAMENT SNOOKER

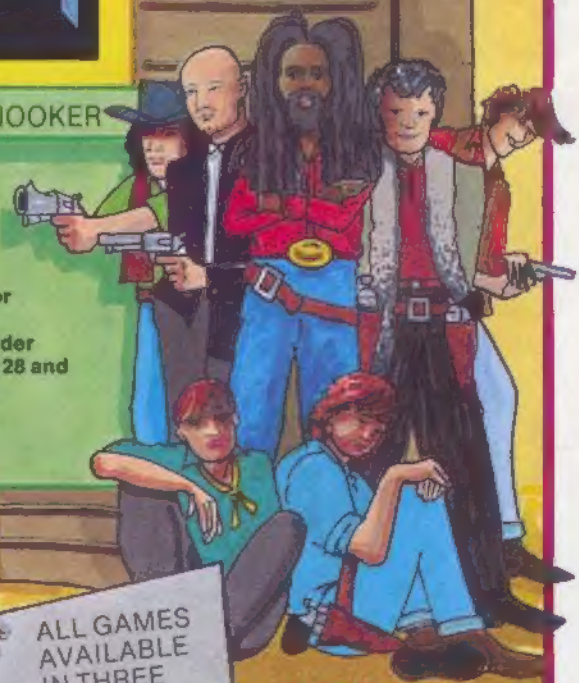


MSX



MSX 2

The ultimate snooker simulation. Keyboard. Also available for Spectrum 48K, Amstrad/Schneider CPC 464, 664, 6128 and Memotech 32K.



TRADE ENQUIRIES:

Magnificent 7 Software Ltd.,
21 Uptfield, Horley,
Surrey RH6 7JY
Tel: (0293) 786083

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C Y B E R U N



